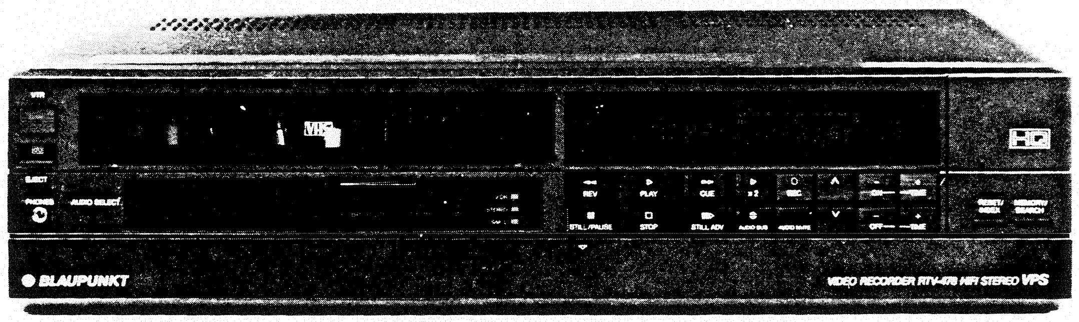
● BLAUPUNKT
BOSCH Gruppe

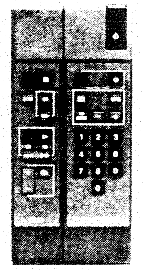
HiFi Stereo Video Recorder
RTV-478 EGC/ECV
7 618 505/506

Kundendienstschrift · Service Manual

VHS
PAL

HQ





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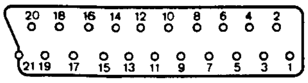
BP/VKD 1 D86 420 020

Technische Daten

Typ:	**RTV-478 EGC/ECV**
Netzanschluß:	220 V Wechselspannung, 50/60 Hz
Leistungsaufnahme	ca. 40 Watt
Fernsehsystem:	CCIR: 625 Zeilen, 50 Halbbilder RTV-478 EGC = PAL und SECAM-(Ost)-Farbsignal, Kabeltuner RTV-478 ECV = PAL-Farbsignal, Kabeltuner
Video-Aufnahmesystem:	Schrägspuraufzeichnung VHS (mit Superstandbild)
Tonspuren:	1 Normal-Spur (Mono), 2 Schrägspuren (HiFi): Zweikanal/Stereo
Bandgeschwindigkeit:	23,39 mm/sec.
Bandformat:	VHS -Videocassette
Aufnahme-/Wiedergabe-zeit:	240 min. mit M-E 240
Vorspul-/Rückspul-Zeit:	Weniger als 5,5 min. mit M-E 180
Köpfe:	Video: 3 rotierende Köpfe. Zwei Köpfe für Aufnahme und Wiedergabe und 1 Kopf für Superstandbild. Audio: 2 rotierende Köpfe für HiFi Audio/Sync.: 1 Kopf Löschen: 1 Ganzspur-Löschkopf 1 Tonspur-Löschkopf
Video-Eingangspegel:	VIDEO IN-Buchse/ Euro-AV-Buchse 1,0 V_{ss}, 75 Ω
Video-Ausgangspegel:	VIDEO OUT-Buchse/ Euro-AV-Buchse 1,0 V_{ss}, 75 Ω HF-Konverter UHF Kanal 36 (±4), 75 Ω
Audio-Eingangspegel:	2× LINE IN-Buchse − 10 dBV ≧ 50 kΩ Euro-AV-Buchse − 10 dBV ≧ 10 kΩ MIC IN-Buchse - 70 dBV niederohmig
Audio-Ausgangspegel:	2× LINE OUT-Buchse − 8 dBV ≦ 1 kΩ Euro-AV-Buchse − 6 dBV ≦ 1 kΩ Kopfhörer-Buchse (PHONES) − 30 dBV 8 Ω
Horizontale Videoauflösung:	bei Farbe größer als 240 Zeilen
Signal-Störabstand:	Video; besser als 43 dB
Dynamikbereich:	Audio; besser als 90 dB (HiFi-Tonspur)
Tonfrequenzgang:	20 Hz bis 20 kHz (HiFi-Tonspur)
Gleichlaufschwankungen:	0,005 % W_{rms} (HiFi-Tonspur)
Betriebs-Temperatur:	5°C - 40°C
Betriebs-Luftfeuchtigkeit:	35 % − 80 %
Masse:	ca. 8,4 kg
Abmessungen:	ca. 430 (B) × 99 (H) × 364,5 (T) mm

Belegung der Euro-AV-Buchse:



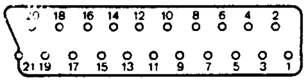
1 Audio-Ausgang CH 2 (R)
2 Audio-Eingang CH 2 (R)
3 Audio-Ausgang CH 1 (L)
4 Audio-Masse
5 frei
6 Audio-Eingang CH 1 (L)
7 frei
8 Schaltspannung
9
10
11
12
13 } frei
14
15
16
17 Video-Masse
18 frei
19 Video-Ausgang
20 Video-Eingang
21 Masse

Mitgeliefertes Zubehör:	1 Infrarot-Fernbedienung 1 Koaxialkabel 1 Kopfhöreradapter 2 Audiokabel (Cinch)

Specifications

Type:	**RTV-478 EGC/ECV**
Power Source:	220 V AC 50/60 Hz
Power Consumption	Approx. 40 watts
Television System:	CCIR: 625 lines, 50 fields RTV-478 EGC = PAL/SECAM-(East)-colour signal, cable tuner RTV-478 ECV = PAL-colour signal, cable tuner
Video Recording System:	Recording by helical scanning VHS (with super still)
Audio Tracks:	1 track (Normal), 2 helical tracks (2 channels HiFi): Stereo/Bilingual
Tape Speed:	23,39 mm/s
Tape Format:	VHS -Video Cassette Tape
Record/Playback Time:	240 min. with M-E 240
FF/REW Time:	Less than 5,5 min. with M-E 180
Heads:	Video: 3 rotary heads. 1 pair for recording and playback and 1 pc. for super still picture. Audio: 2 rotary heads for audio HiFi recording and playback. Audio/Sync.: 1 head Erase: 1 full track erase 1 audio track erase
Video Input Level:	VIDEO IN and Euro-AV-Socket 1.0 V_{p-p}, 75 Ω
Video Output Level:	VIDEO OUT and Euro-AV Socket 1.0 V_{p-p}, 75 Ω RF-Modulator UHF channel 36 (±4), 75 Ω
Audio Input Level:	2× LINE IN − 10 dBV ≧ 50 kΩ Euro-AV Socket − 10 dBV ≧ 10 kΩ MIC IN Socket - 70 dBV low impedance
Audio Output Level:	2× LINE OUT − 8 dBV ≦ 1 kΩ Euro-AV Socket − 6 dBV ≦ 1 kΩ Headphones − 30 dBV 8 Ω
Video Horizontal Resolution:	Colour; morr than 240 lines
Signal-to-Noise Ratio:	Video; more than 43 dB
Dynamic Range:	Audio; more than 90 dB (HiFi sound track)
Audio Frequency Response:	20 Hz – 20 kHz (HiFi sound track)
Wow and Flutter:	0,005 % W_{rms} (HiFi sound track)
Operating Temperature:	5°C - 40°C
Operating Humidity:	35 % − 80 %
Weight:	Approx. 8,4 kg
Dimensions:	430 (W) × 99 (H) × 364,5 (D) mm

Connections of the Euro-AV Socket:



1 Audio Output CH 2 (R)
2 Audio Input CH 2 (R)
3 Audio Output CH 1 (L)
4 Audio Ground
5 No connection
6 Audio Input CH 1 (L)
7 No connection
8 Switching voltage
9
10
11
12
13 } No connection
14
15
16
17 Video Ground
18 No connection
19 Video Output
20 Video Input
21 Ground

Standard Accessories:	1 pc. Infrared remote control unit 1 pc. Coaxial cable 1 pc. Headphones adapter 2 pcs. Audio cable (Cinch)

Einstellung der Bildsynchronisation bei „Standbild“

1. Eine Sendung aufnehmen (ca. 10 Min.)
2. Die aufgezeichnete Sendung wiedergeben. Kontrollieren, ob sich die Einsteller „TRACKING“ und „SLOW TRACKING“ in der Raststellung befinden.
3. Die Taste „STILL/PAUSE“ drücken.
4. Mit dem Regler „V-LOCK“ an der Unterseite des Gerätes das Bildzittern auf Minimum einstellen.

Adjustment of Picture Synchronization for “still-frame picture”

1. Record a programme (ca. 10 min.).
2. Playback the recorded programme and check if the adjusters “TRACKING” and “SLOW TRACKING” are in the fix position.
3. Press the “STILL/PAUSE” button.
4. Tune the jumping pictures to a minimum by means of the “V-LOCK” adjuster situated at the bottom of the set.

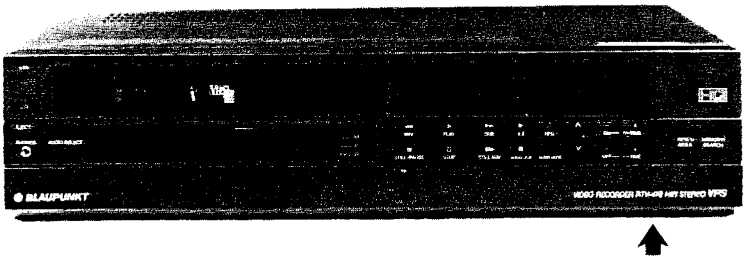


Fig. 1

Mechanische Wartung

Nachstehende Teile benötigen eine regelmäßige Reinigung, da sich mit der Zeit Bandabrieb ansammelt.
Bei Verwendung von Marken-Videocassetten sind die Reinigungsarbeiten nach ca. 500 Betriebsstunden durchzuführen. Bei Verwendung anderer Videocassetten können die Reinigungsarbeiten schon nach kürzerer Betriebszeit notwendig werden.

Reinigung der Rotationsköpfe

- Demontage der Gehäuseteile siehe „Servicevorbereitungen“ Seite 6.
- Ein weiches Ledertuch (Kopfreiniger 8 627 000 552) oder ein fusselfreies Tuch mit reinem Alkohol anfeuchten und mit sanftem Druck auf die Rotationsköpfe (A) halten. Nun die Kopfscheibe mit der Hand hin- und herbewegen. Diesen Vorgang wiederholen bis der Bandabrieb beseitigt ist.

Mechanical Servicing

The following parts require regular cleaning because of gradual tape abrasion. If you use brand video cassettes, cleaning has to be performed approximately after 500 working hours. If you use other video cassettes, cleaning already becomes necessary after a shorter working time.

Cleaning of rotary heads

- Disassembly of the cabinet parts, see page 6 “Service Preparations”.
- Moisten a soft leather cloth (head cleaner 8 627 000 552) or a lint-free cloth with pure alcohol and press it softly on the rotary heads (A). Move the upper cylinder by hand in either direction and repeat this procedure until the tape abrasion has been removed.

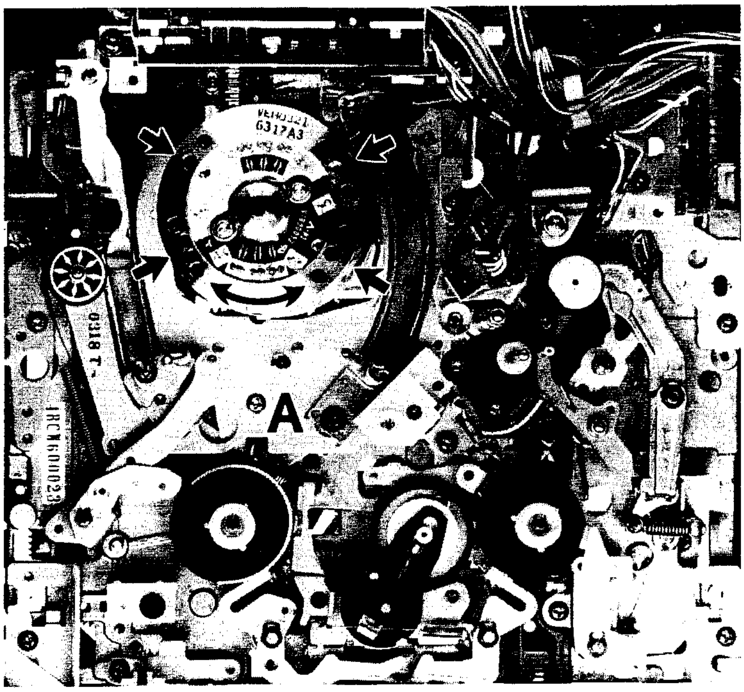


Fig. A

- **Reinigung der Löschköpfe und des Ton-Synchronkopfes**
  Die Köpfe (B) sind mit einem Wattestäbchen, das mit reinem Alkohol angefeuchtet ist, zu reinigen.

- **Cleaning of the erase head and the audio synchronous head**
  The heads (B) have to be cleaned with a cotton-wool bud moistened with pure alcohol.

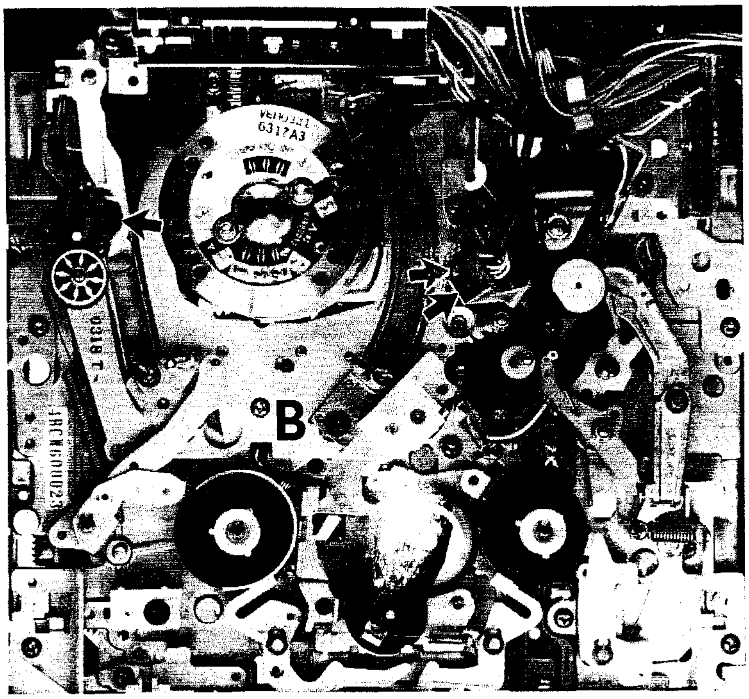


Fig. B

- **Reinigung von Führungsrollen, Andruckrolle, Capstanwelle und Bandführungen**
  Diese Teile (C) sind mit einem Wattestäbchen, das mit reinem Alkohol angefeuchtet ist, zu reinigen.

- **Cleaning of the guide rollers, pressure roller, capstan shaft and the tape sliders**
  These parts (C) have to be cleaned with a cotton-wool bud moistened with pure alcohol.

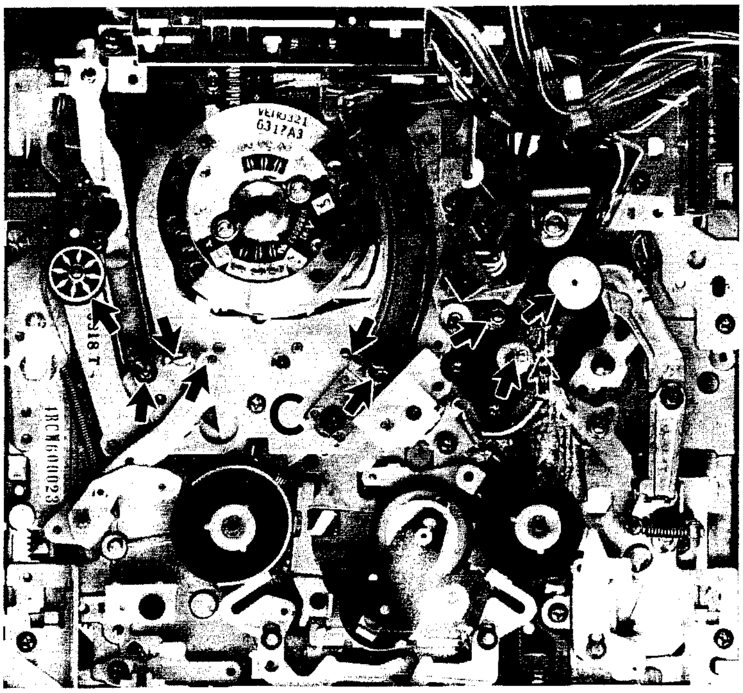


Fig. C

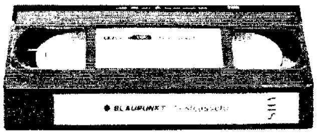
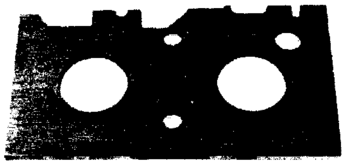
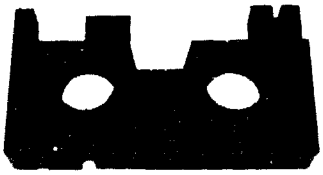
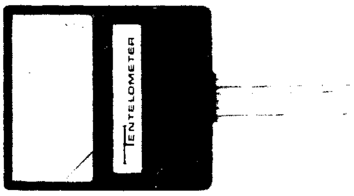
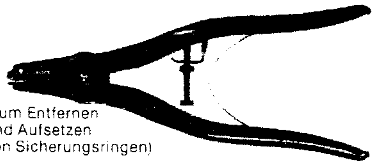
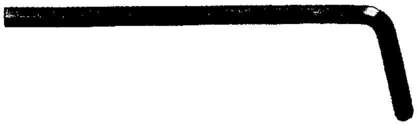
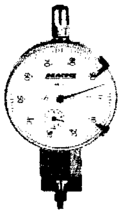
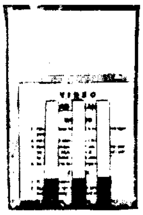
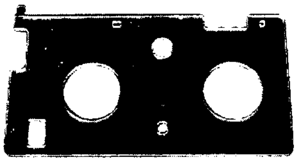
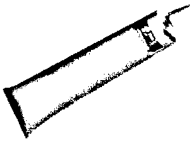
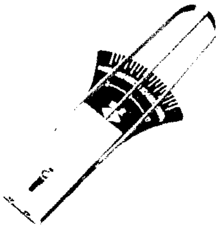
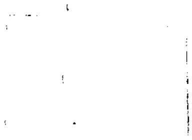
- Nach Beendigung der Reinigungsarbeiten die demontierten Teile wieder montieren.

Hinweise:
1. Bevor die Videocassette eingesetzt wird, müssen alle gereinigten Teile gut abgetrocknet sein, um Bandschäden zu vermeiden.
2. Antriebsriemen und Lager benötigen unter normalen Betriebsbedingungen keine Wartung.

- After finishing these cleaning works reassemble all disassembled parts.

Hints:
1. Before the video cassette can be inserted all cleaned parts have to be completely dry in order to avoid tape defects.
2. Drive belts and bearings to not require servicing in normal working conditions.

Erforderliche Meßgeräte, Schablonen und Spezialwerkzeuge
Required Servicing Fixtures, Jigs and Special Tools

8 627 000 540 VHS-Testcassette VHS Alignment Tape 	8 627 000 725 Einstellplatte Post Adjustment Plate 	8 627 000 726 Cassettenlehre Cassette Holder Fixture 
8 627 000 554 Bandzugwaage Back Tension Meter 	Spezialzange/Retaining Ring Remover 8 627 000 557 (3 mm) 8 627 000 556 (4 mm)  (Zum Entfernen und Aufsetzen von Sicherungsringen) (For removing and inserting retaining rings)	8 627 000 731 Spezial-Schraubendreher H-Portion Screw Driver
8 627 000 541 Drehmomentmeßuhr Dial Torque Gauge 8 627 000 586 Adapter/Adapter 	Sechskantschlüssel/Hexagonal Wrench 8 627 000 587 (0.9 mm) 8 627 000 555 (1.25 mm) 8 627 000 550 (1.5 mm) 	8 627 000 724 Höhenmeßuhr Reel Table Height Jig 
8 627 000 542 Exzenter-Schraubendreher Eccentric Screwdriver 	8 627 000 728 Videokopfprüfer Head Tester 	8 627 000 552 Kopfreiniger Head Cleaning Sticks 
8 627 000 543 Spezial-Schraubendreher Fine Adj. Screwdriver ca. 1,5 mm / approx. 1.5 mm 	8 627 000 727 Referenzplatte (Bandzughebel) Tension Post Adj. Fixture 	8 627 000 315 Schmiermittel Morlytone Grease 
8 627 000 544 Einstell-Schraubendreher Post Adj. Screwdriver 	8 627 000 553 Federwaage Fan-Type Tension Gauge 	8 627 000 548 Capstan- Bezugsschablone Capstan Reference Plate 

Servicevorbereitungen

1. Flußdiagramm

Dieses Flußdiagramm zeigt die Demontage der Gehäuseteile und der Leiterplatinen, um die Serviceteile zu erreichen.

Service Preparations

1. Flowchart

This flowchart indicates disassembly of the cabinet parts and P.C. boards in order to reach the items to be serviced.

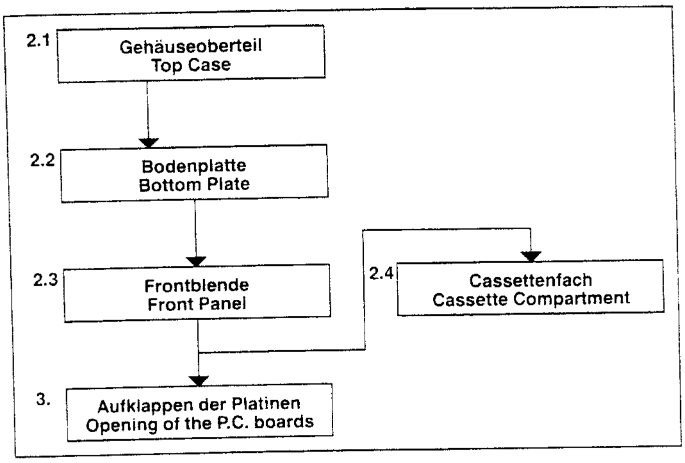

2.1
Gehäuseoberteil
Top Case
2.2
Bodenplatte
Bottom Plate
2.3
Frontblende
Front Panel
2.4
Cassettenfach
Cassette Compartment
3.
Aufklappen der Platinen
Opening of the P.C. boards

Fig. 1

Hinweis:

Das Gerät hat teilweise Verriegelungsklemmen anstelle von Befestigungsschrauben. Arbeiten Sie daher beim Service äußerst vorsichtig, damit diese Verriegelungsklemmen nicht abbrechen.

2. Demontage

2.1 Entfernen des Gehäuseoberteils

1. Die vier Schrauben (A) seitlich am Gehäuse entfernen.
2. Das Gehäuseoberteil abheben.

Hint:

This device has partially locking tabs instead of assembly screws. Because of that you have to work carefully so as not to break these locking tabs during servicing.

2. Disassembly

2.1 Removal of Top Case

1. Remove the 4 screws (A) on the cabinet side.
2. Remove the top case.

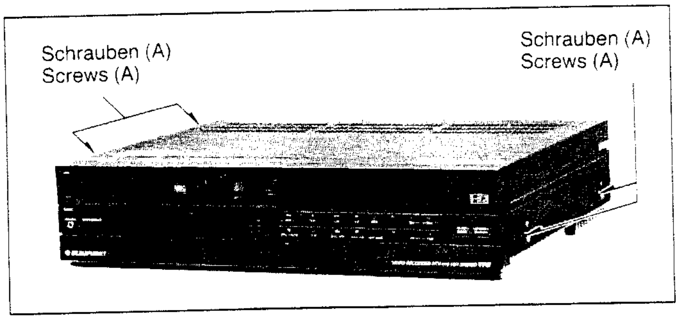

Schrauben (A)
Screws (A)
Schrauben (A)
Screws (A)

Fig. 2

2.2 Entfernen der Bodenplatte

1. Das Gerät hochkant auf eine weiche Unterlage stellen.
2. Die 8 Schrauben (B) entfernen und die Bodenplatte abnehmen.

2.2 Removal of Bottom Plate

1. Place the deck on end on a soft surface.
2. Remove the 8 screws (B) and remove the bottom plate.

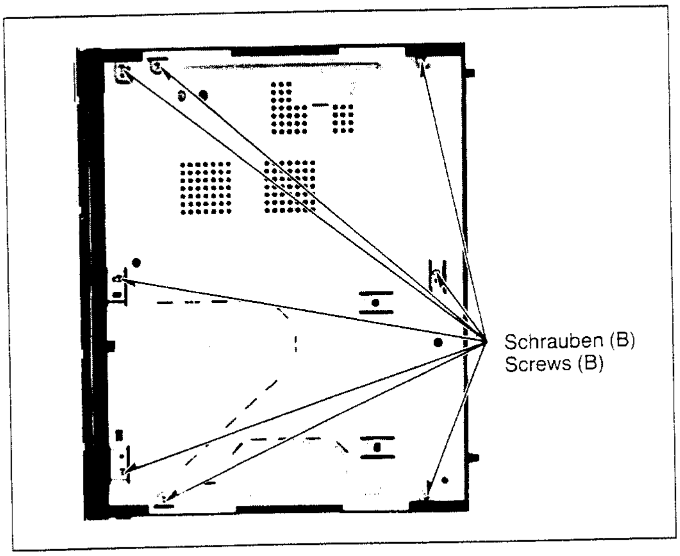

Schrauben (B)
Screws (B)

Fig. 3

2.3 Entfernen der Frontblende

1. Die drei Schrauben (C) entfernen.
2. Vorsichtig die 6 Verriegelungsklemmen (D) an der oberen und unteren Seite der Frontblende lösen und die Frontblende etwas nach vorne ziehen.
3. Nun den Stecker P6201 der Kopfhörer-Buchsenplatine sowie den Stecker P6203 der Mikrofon-Buchsenplatine lösen und die Frontblende abnehmen.

2.3 Removal of Front Panel

1. Remove the 3 screws (C).
2. Unlock the 6 locking tabs (D) carefully on the top and bottom side of the front panel and pull it somewhat toward the front.
3. Now loosen the connector P6201 of the P.C. board headphone jack and the connector P6203 of the P.C. board microphone jack and remove the front panel.

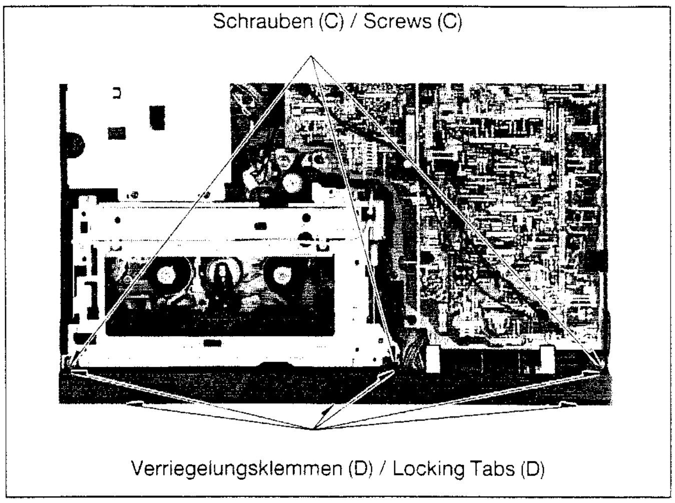

Schrauben (C) / Screws (C)
Verriegelungsklemmen (D) / Locking Tabs (D)

Fig. 4

2.4 Cassettenfach demontieren

1. Die 3 Schrauben (E) lösen und und das Abschirmblech abnehmen.
2. Die beiden roten Schrauben (F) herausdrehen und das Cassettenfach komplett etwas anheben.
3. Den Stecker P1510 vom Cassetten-Einzugsmotor abziehen und das Cassettenfach herausnehmen.

2.4 Removal of Cassette Compartment

1. Unscrew 3 screws (E) and remove the shield case.
2. Unscrew both red screws (F) and lift the entire cassette compartment.
3. Disconnect the connector P1510 form the cassette loading motor and remove the cassette compartment.

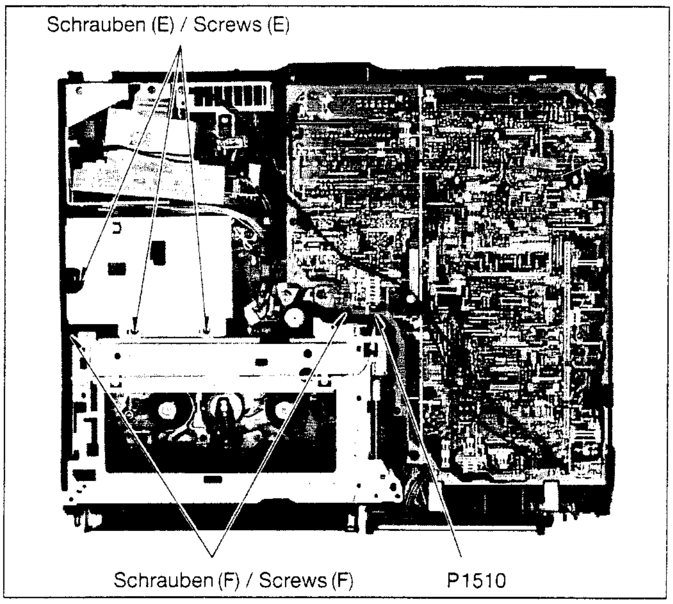

Schrauben (E) / Screws (E)
Schrauben (F) / Screws (F)
P1510

Fig. 5

3. Aufklappen der Platinen

3.1 Lösen der Bedienteilplatine

1. Die 3 Schrauben (G) entfernen, die 3 Verriegelungsklemmen (H) lösen und die Bedienteilplatine nach vorne klappen.

3. Tilting of P.C. Boards

3.1 Loosening of Operation C. Board

1. Unscrew 3 screws (G) and 3 locking portions (H) to tilt the P.C. Board towards the front.

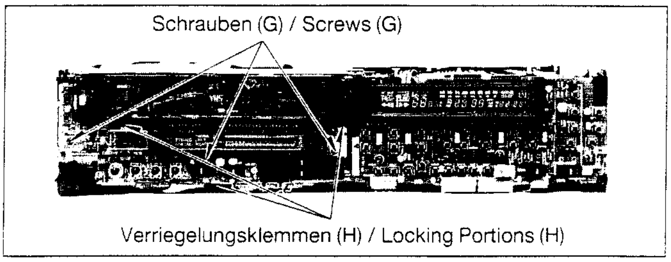

Schrauben (G) / Screws (G)
Verriegelungsklemmen (H) / Locking Portions (H)

Fig. 6

5. Einstellung des Bandzughebels

Benötigtes Werkzeug:

Referenzplatte	8 627 000 727
Spezial-Schraubendreher	8 627 000 543

1. In das ausgebaute Cassettenfach (P 1510 angeschlossen) eine Cassette einsetzen. Das Gerät schaltet auf „PLAY".
2. Sobald der Einfädelvorgang beendet ist, den Netzstecker herausziehen.
3. Die Referenzplatte einsetzen, dazu die Schraube der Spannbandbremse leicht lockern.
4. Den Spezial-Schraubendreher in die Bohrung stecken und die Spannbandbremse hin und her bewegen, bis der Bandzughebel die Referenzplatte gerade berührt. Die Befestigungsschraube anziehen.

5. Adjustment of Tension Post

Required equipment:

Reference Plate	8 627 000 727
Fine Adjustment Screwdriver	8 627 000 543

1. Insert a cassette into the disassembled cassette compartment (P 1510 connected). The set switches to "PLAY".
2. As soon as the loading procedure is completed pull the AC plug.
3. Place the reference plate after slightly loosening the screw securing the tension band brake.
4. Insert the fine adjustment screwdriver into the hole and move the tension band brake in either direction so that the tension post just touches the reference plate. Tighten the assembly screw.

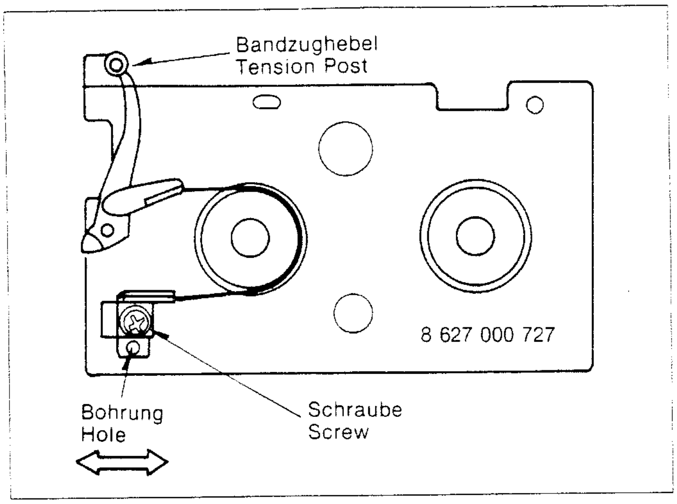


Fig. 16

6. Prüfung der Bremsmomente

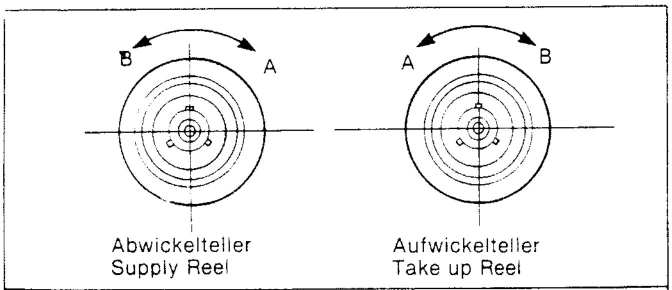
Benötigtes Werkzeug:

Drehmomentmeßuhr	8 627 000 541
Adapter	8 627 000 586

6. Testing of Tension Torques

Required equipment:

Torque Gauge	8 627 000 541
Adapter	8 627 000 586



	A	B
Aufwickelteller Take up Reel	≧ 400 g-cm	95 bis 185 g-cm
Abwickelteller Supply Reel	≧ 400 g-cm	70 bis 150 g-cm

Fig. 17

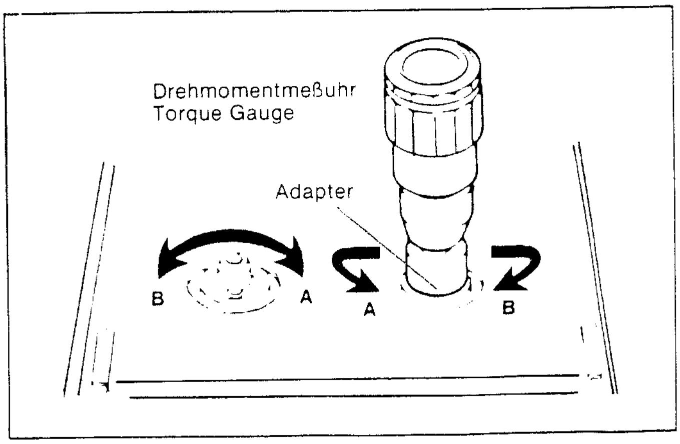


Fig. 18

Prüfung:

1. Den Adapter auf die Drehmomentmeßuhr aufsetzen.
2. Das Gerät auf STOP schalten und die Taste EJECT betätigen.
3. Die Drehmomentmeßuhr auf den Wickelteller setzen. Das Gewicht des Meßgerätes sollte nicht auf dem Wickelteller lasten.
4. Die Drehmomentmeßuhr rechts bzw. links herumdrehen, bis die Bremse zu rutschen beginnt. Die Sollwerte entnehmen Sie bitte der Tabelle Fig. 17.
(Die Messungen mehrmals durchführen).

Hinweise:

- Die Leichtgängigkeit der Bremshebel überprüfen.
- Wenn die Bremsmomente wesentlich abweichen, müssen ggf. Bremshebel oder Wickelteller ausgetauscht werden.
Einstellungen sind nicht möglich.
(Die Messungen mehrmals durchführen).

Testing:

1. Attach the adaptor to the torque gauge.
2. Switch the set to STOP mode and press the EJECT button.
3. Place the torque gauge on the reel table. The weight of the gauge should not rest upon the reel table.
4. Turn the torque gauge to the left or the right, resp., until the brake begins to slip. For specified values refer to fig. 17.
(Conduct multiple gaugings).

Hints:

- Test the easy movement of the brake levers.
- If the brake torques vary essentially, the brake lever arm or the reel table may have to be replaced.
Adjustments are not possible.
(Conduct multiple gaugings).

7. Prüfung der Aufwickeldrehmomente

Benötigtes Werkzeug:

Drehmomentmeßuhr	8 627 000 541
Adapter	8 627 000 586

1. In das ausgebaute Cassettenfach (P 1510 angeschlossen) eine Cassette einsetzen und auf STOP schalten.
2. Den Adapter auf die Drehmomentmeßuhr aufsetzen.
3. Die Drehmomentmeßuhr auf den Aufwickelteller setzen, die Wiedergabetaste (PLAY) drücken und das Drehmoment ablesen. In gleicher Weise für den schnellen Vorlauf durch Drücken der Taste Vorlauf (▶▶) verfahren.
   Die Nennwerte der Aufwickelmomente sind
   bei Wiedergabe 105 bis 145 Gramm-cm,
   bei schnellem Vorlauf mehr als 350 Gramm-cm.
4. Die Drehmomentmeßuhr auf den Abwickelteller setzen, die Taste für Rücklauf (◀◀) drücken und in der Betriebsart Rücklauf messen (Nennwert mehr als 350 Gramm-cm).

   Wenn die Drehmomente wesentlich abweichen, müssen ggf. Rollen, Zwischenräder oder Wickelteller ausgetauscht werden. Einstellungen sind nicht möglich.
   (Die Messungen mehrmals durchführen).

Prüfung des Drehmoments bei „REVIEW"

5. Die Drehmomentmeßuhr auf den Abwickelteller setzen, die Wiedergabetaste (PLAY) und anschließend die Taste (REV) drücken. In dieser „REVIEW"-Betriebsart muß das Drehmoment 220 ± 20 g-cm betragen. Um ein automatisches Abschalten zu vermeiden, den Aufwickelteller mit der Hand drehen.
   Die Einstellung des Drehmomentes erfolgt durch Einhängen der Feder (Fig. 19) in eine andere Kerbe.

7. Adjustment of Take-Up Torques

Required equipment:

Torque Gauge	8 627 000 541
Adaptor	8 627 000 586

1. Insert a cassette into the disassembled cassette compartment (P 1510 connected) and press the STOP button.
2. Attach the adaptor to the torque gauge.
3. Set the torque gauge onto the take-up reel, press the button "PLAY" and read the value of torque. Proceed in this way with the fast forward by pressing the FF button (▶▶).
   The nominal values of the take-up torque are 105 to 145 g-cm for PLAY mode and over 350 g-cm for FF mode.
4. Set the torque gauge to the supply reel, press the rewind button (◀◀) and gauge it in rewind mode (nominal value more than 350 g-cm).
   If the take-up torques vary essentially, the rollers, idlers or reel tables may have to be replaced.
   Adjustments are not possible.
   (Conduct multiple gaugings).

Adjustment of Torque in "REVIEW" mode

5. Place the torque gauge on top of the supply reel, press the PLAY button and then the REV button. In "REVIEW" mode, torque has to amount to 220 ± 20 g-cm. Turn the take up reel manually in order to prevent an automatic switch-off.
   Torque is adjusted by hooking the spring (fig. 19) into another notch.

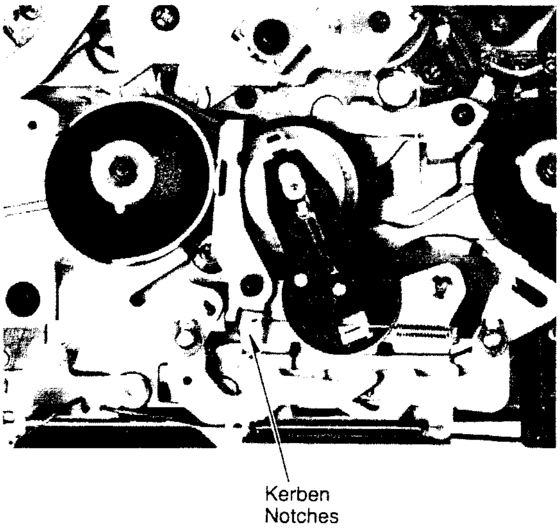


Fig. 19

8. Messung und Einstellung des Bandzuges

Benötigtes Werkzeug:

Bandzugwaage	8 627 000 554
VHS-Cassette	120 Minuten

Eine zweite VHS-Cassette wird für den Casseteneinzug benötigt.

A. Meßvorgang

1. Das Gerät einschalten und die zusätzliche Cassette in das ausgebaute Cassettenfach schieben (P 1510 angeschlossen).
2. Die 120-Min.-VHS-Cassette mit geöffneter Bandabdeckung vorsichtig auf die Wickelteller legen und mit einem entsprechenden Gegenstand beschweren.
3. Den Löschkopf in Pfeilrichtung ziehen und mit Klebeband befestigen (Fig. 20).
4. Die Cassette von Anfang an abspielen und warten, bis der Bandlauf nach ca. 10 bis 20 Sekunden stabil ist.
5. Die Bandzugwaage in den Bandlauf einfügen und ablesen. Der Sollwert beträgt 25 bis 30 Gramm.
6. Weicht der Meßwert vom Sollwert ab, muß neu eingestellt werden.

8. Measurement and Adjustment of Back Tension

Required equipment:

Back Tension Meter	8 627 000 [illegible]
VHS Cassette	(120 minu[illegible]

A second VHS Cassette is required for the cassette loading.

A. Measurement Procedure

1. Turn the deck on and insert the additional cassette into the disassembled cassette compartment (P 1510 connected).
2. Put the 120 min VHS cassette with the opened tape covering carefully on the reel table and weight it with an appropriate object.
3. Pull the erase head in the direction indicated by the arrow and fasten it with adhesive tape (fig. 20).
4. Play back the cassette tape from its beginning and wait until tape running has stabilized (after approx. 10 to 20 seconds).
5. Insert the tension meter in the path and read the value. The specified value amounts to 25 to 30 g.
6. Repeat adjustment if the measured value deviates from the specified value.

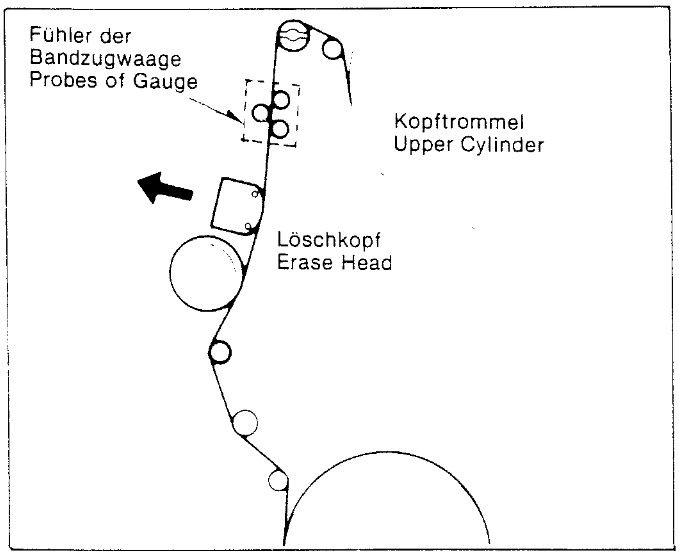


Fig. 20

Hinweise:

- Alle drei Fühler des Meßgerätes müssen guten Kontakt mit dem Band haben, dürfen aber sonst keine anderen Teile berühren.
- Da das Meßgerät sehr empfindlich ist, soll jede Messung mehrmals durchgeführt werden.

B. Einstellvorgang

Wenn die Sollwerte nicht eingehalten werden:

1. Um die Spannung zu verringern, die Feder oben einhängen; um sie zu erhöhen, die Feder unten einhängen. Den Bandzug nochmals mit dem Meßgerät prüfen.
2. Nach Abschluß des Einstellvorganges den Löschknopf wieder freigeben.

9. Höheneinstellung der Wickelteller

Benötigtes Werkzeug:
Einstellplatte 8 627 000 725
Höhenmeßuhr 8 627 000 724

Spezifikation: 0 ± 0,2 mm

1. Das Cassettenfach entfernen.
2. Die Einstellplatte einlegen.
Die Höhenmeßuhr auf die Platte setzen und die Einstellung auf „0" eichen. Dabei muß der Meßfuß der Höhenmeßuhr den ausgeschnittenen Teil der Platte berühren.

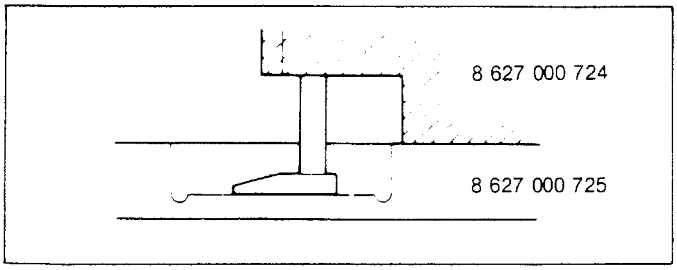


Fig. 22

3. Danach die Oberkante der Wickelteller messen.
4. Die Differenz der Meßergebnisse zwischen Wickelteller und Ausschnitt der Platte muß innerhalb der Nennwerte liegen (0± 0,2 mm). Liegt sie außerhalb dieser Werte, muß die Höhe des Wickeltellers nachgestellt werden. Zum Ausgleich werden Unterlegscheiben benötigt. Unterlegscheiben sind in den Stärken 0,13 mm, 0,25 mm und 0,5 mm erhältlich.

Unterlegscheiben	Bestellnummer
0,13 mm	8 619 218 415
0,25 mm	8 619 212 411
0,5 mm	8 619 218 404

5. Zum Austausch der Unterlegscheiben die Sicherungsringe der Wickelteller entfernen. Die Wickelteller abziehen und die Unterlegscheiben auswechseln.

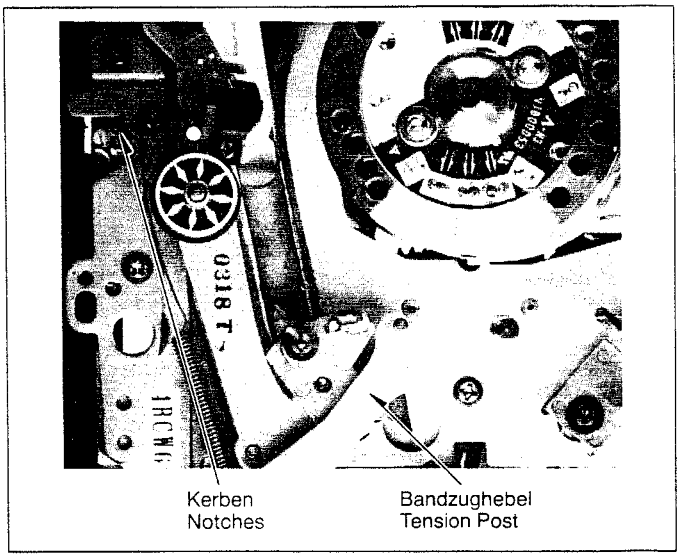


Fig. 21

Hints:

- Make sure that the three probes of the meter are all in good contact with the tape, but out of contact with any other parts.
- Several measurements are recommended as tension meters are very sensitive.

B. Adjustment Procedure

If the specified values can not be matched:

1. Hook the spring on bottom for raising and on top for lowering tension. Verify the tension once again with the meter.
2. After the adjustment is completed, remove the adhesive tape.

9. Height Adjustment of Reel Tables

Required equipment:
Post Adjustment Plate 8 627 000 725
Reel Table Height Fixture 8 627 000 724

Specification: 0 ± 0.2 mm

1. Remove the cassette compartment.
2. Insert the post adjustment plate, put the dial gauge on it and set the dial gauge to "0". The scraper of the gauge must touch the cut-out portion of the plate.

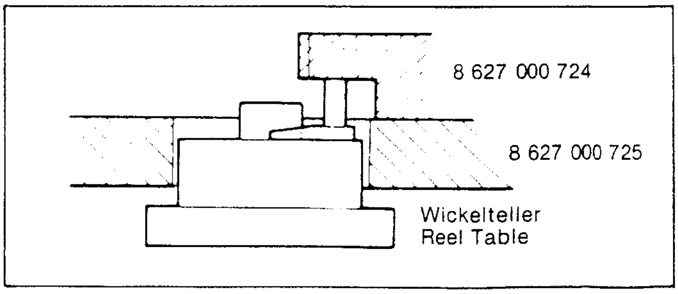


Fig. 23

3. Then measure the top edge of the reel table.
4. The difference of measuring results of reel table and cut-out portion of the plate has to lie within the nominal values 0 ± 0.2 mm. If the difference is more than this value, adjust the height of the reel table with washers. These washers are available in thicknesses of 0.13 mm, 0.25 mm and 0.5 mm.

Washers	Part No.
0.13 mm	8 619 218 415
0.25 mm	8 619 212 411
0.5 mm	8 619 218 404

5. For taking out the washers remove the retaining rings from the reel table.
Remove the reel tables and change the washers.

10. Höheneinstellung der Bandführungen (Voreinstellung)

Diese Voreinstellung nur dann durchführen, wenn Bandführungen ausgetauscht oder stark verstellt wurden.

Feineinstellung siehe Absatz 12 und 13 auf den Seiten 15 bis 17.

Erforderliche Ausrüstung:

Einstellplatte	8 627 000 725
Höhenmeßuhr	8 627 000 724
Einstell-Schraubendreher	8 627 000 544
Steckschlüssel	5,5 mm

1. Das Cassettenfach ausbauen. (siehe Abschnitt „Servicevorbereitung")
2. Die Einstellplatte 8 627 000 725 einlegen.

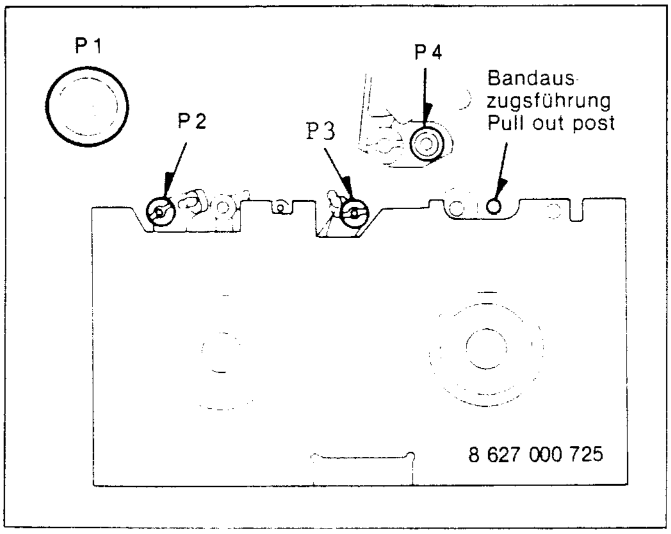


Fig. 24

3. Die Schrauben der Bandführungen P 2 und P 3 lösen und die Bandführungen nach unten verstellen (Fig. 24/25).
4. Die Höhenmeßuhr so auf die Einstellplatte stellen, daß der Meßfuß an der Führung z. B. P 2 anliegt.
5. Die Meßuhr auf „0" stellen und die Führung mit dem Einstell-Schraubendreher 8 627 000 544 solange nach oben drehen, bis sie den Meßfuß berührt.
6. Zum Einstellen der Führungen P 1 und P 4 (Fig. 24) einen Steckschlüssel verwenden und die Bandführungen wie unter Pkt. 5 beschrieben einstellen.
7. Anschließend die Feineinstellung durchführen (siehe Absatz 12 und 13 auf den Seiten 15 bis 17).

11. Einstellung der Bandauszugsführung

Hinweis:

- Diese Einstellung nur dann durchführen, nachdem die Bandführung P 4 eingestellt wurde.
- Die Höhe der Bandauszugsführung muß im eingefädelten Zustand eingestellt werden.

Erforderliche Ausrüstung:

Einstellplatte	8 627 000 725
Höhenmeßuhr	8 627 000 724
Steckschlüssel	5,5, mm

Spezifikation: 0,01 ± 0,01 mm

1. In das ausgebaute Cassettenfach (P 1510 angeschlossen) eine Cassette einsetzen. Das Gerät schaltet auf „PLAY".
2. Sobald der Einfädelvorgang beendet ist, den Netzstecker ziehen.
3. Die Einstellplatte einlegen. Die Höhenmeßuhr auf die Einstellplatte stellen und auf „0" eichen.
4. Durch Rechtsdrehen der Einstellmutter langsam die Bandauszugsführung lösen.
5. Den Meßfuß so an die Auszugsführung legen, wie in Fig. 26 gezeigt.
6. Dann langsam an der Einstellmutter drehen, bis die Höhenmeßuhr die vorgegebene Höhe anzeigt (0,01 ± 0,01 mm).
7. Die Einstellplatte wieder entfernen. Den Netzstecker einstecken, damit das Gerät wieder ausfädeln kann.

10. Height Adjustment of Tape Guide Post (Setting-up)

This setting-up is to be carried out only if tape guides were changed or are strongly out of adjustment.

Fine adjustment, see section 12 and 13, pages 15-17.

Required equipment:

Post Adjustment Plate	8 627 000 725
Reel Table Height Fixture	8 627 000 724
Post Adjustment Screwdriver	8 627 000 544
Nut Driver	5.5 mm

1. Disassemble the cassette compartment. (See section "Servicing Preparations")
2. Insert the post adjustment plate 8 627 000 725.

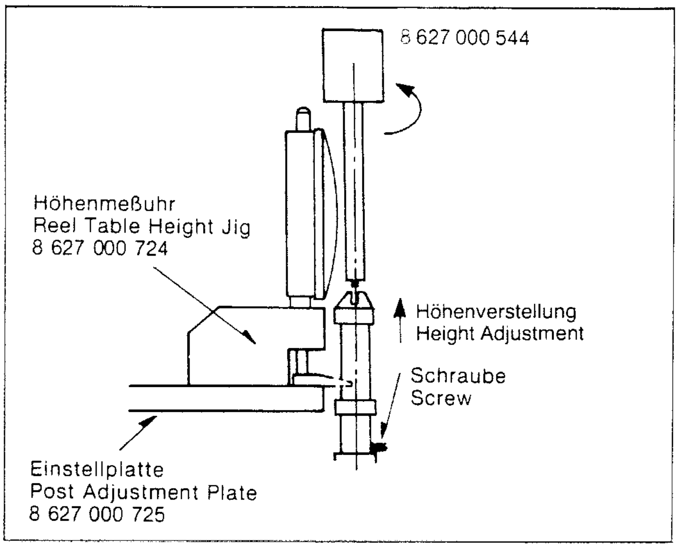


Fig. 25

3. Loosen the screws of the posts P 2 and P 3 and adjust them downwards (fig. 24/25).
4. Place the height fixture on the adjustment plate so that the scraper touches the post, e. g. P 2.
5. Set the dial gauge to "0" and raise the post with the post adjustment screwdriver 8 627 000 544 until it touches the scraper.
6. For adjusting the posts P 1 and P 4 (fig 24), use the nut driver and adjust the posts as indicated in point 5.
7. Then perform the fine adjustment (see section 12 and 13 on pages 15-17).

11. Height Adjustment off Pull Out Post

Hints:

- This adjustment is to be performed only after adjustment of P 4.
- The height of the pull-out post has to be adjusted in the loading completion mode.

Required equipment:

Post Adjustment Plate	8 627 000 725
Reel Table Height Fixture	8 627 000 724
Nut Driver	5.5 mm

Specification: 0.01 ± 0.01 mm

1. Insert a cassette into the disassembled cassette compartment (P 1510 connected). The set switches to "PLAY".
2. As soon as the loading is completed, pull the AC plug.
3. Insert the adjustment plate, put the height fixture on it and set the dial gauge to "0".
4. Loosen the post slightly by turning the nut clockwise.
5. Place the scraper to the post as shown in fig. 26.
6. Then slowly turn the nut until the gauge shows the specified height (0.01 ± 0.01 mm).
7. Remove the post adjustment plate and connect the AC plug for reloading.

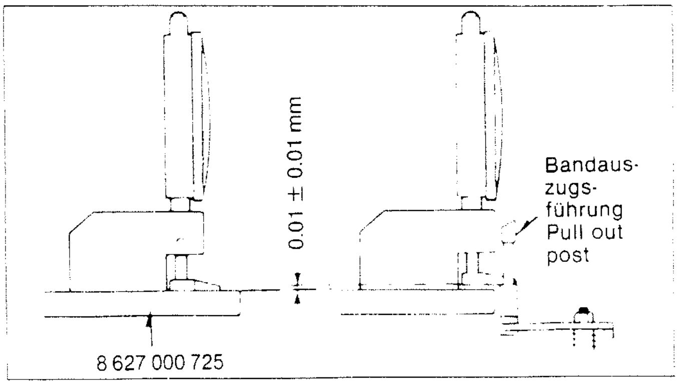


Fig. 26

12. Prüfung und Einstellung der Hüllkurve

Erforderliche Ausrüstung:

VHS-Testcassette	8 627 000 540
Einstell-Schraubendreher	8 627 000 544
Steckschlüssel	5,5 mm

Eine zweite VHS-Cassette wird für den Cassetteneinzug benötigt.

1. **Den Spurregler (Tracking) in die Raststellung bringen.**
2. Den Kanal 1 des Oszilloskops an den Testpunkt TP 3001 (Hüllkurve) und den Kanal 2 an TP 2001 (Kopfumschaltimpuls zur Triggerung) anschließen.
3. Das Gerät einschalten und die zusätzliche Cassette in das ausgebaute Cassettenfach schieben (P 1510 angeschlossen).
4. Die VHS-Testcassette mit geöffneter Bandabdeckung vorsichtig auf die Wickelteller legen und mit einem entsprechenden Gegenstand beschweren.

12. Analysis and Adjustment of the Envelope Curve

Required equipment:

VHS Alignment Cassette	8 627 000 540
Post Adjustment Screwdriver	8 627 000 544
Nut Driver	5.5 mm

A second VHS cassette is required for cassette loading.

1. **Set the tracking control to lock position.**
2. Connect channel 1 of the oscilloscope to the testing point TP 3001 (envelope curve) and channel 2 to TP 2001 (head switching pulse for triggering).
3. Turn the deck on and insert the additional cassette into the disassembled cassette compartment (connected to P 1510).
4. Put the VHS alignment cassette with the opened tape covering carefully on the reel tables and weight it with an appropriate object.

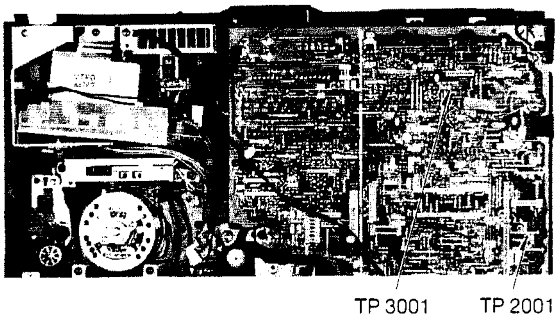


Fig. 27

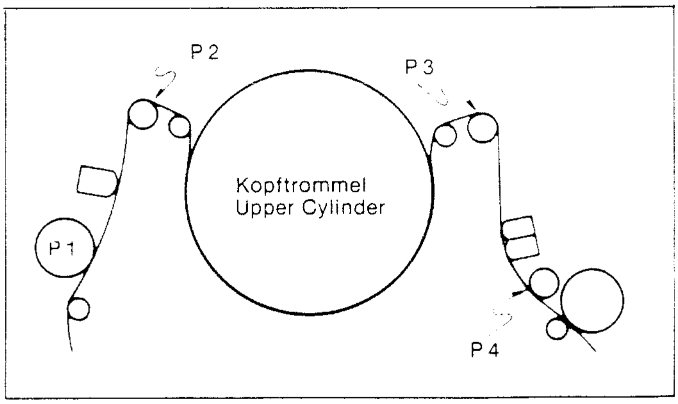


Fig. 28
Lage der Bandführungen
Position of Tape Guide Post

5. Das Testbild der VHS-Testcassette abspielen und die Bandführungen P 2 und P 3 auf geringste Welligkeit der Hüllkurve einstellen. (Siehe Fig. 28 bis Fig. 33).
6. Wenn ein Nachgleichen erforderlich ist, mit dem Einstell-Schraubendreher den oberen Teil der Bandführung drehen (Fig. 30).

5. Play back the test signal of the VHS alignment cassette and adjust the posts P 2 and P 3 to the smallest standing-wave ratio of the envelope curve (See fig. 28 to fig. 33).
6. If readjustment is necessary, turn the upper part of the tape guide post with the post adjustment screwdriver (fig. 30).

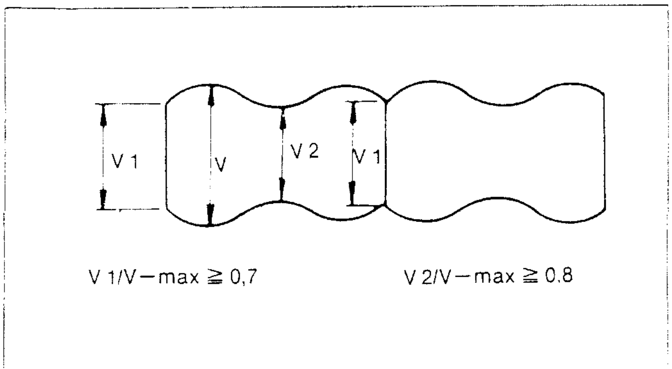


Fig. 29

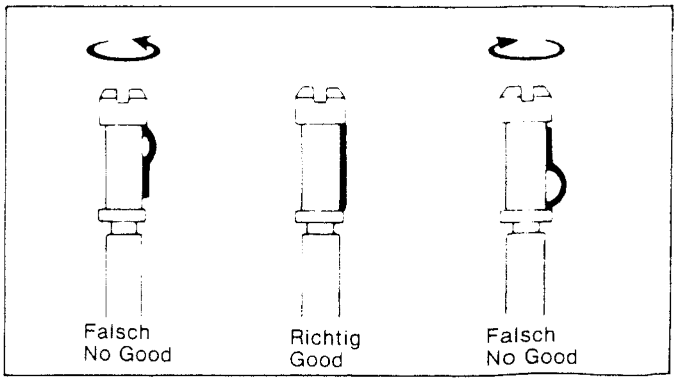


Fig. 30

7. Bei diesem Oszillogramm muß die Höhe von P2 eingestellt werden.

7. When this oscilloscope appears, adjust the height of P 2.

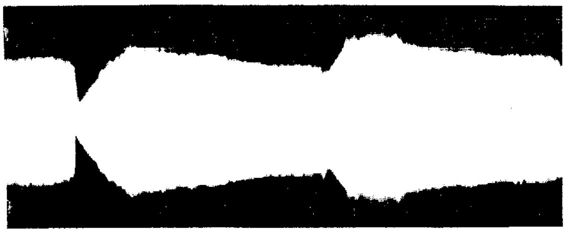

Abfall der Hüllkurve am Anfang der Spur
Drop of envelope level at the beginning of track

Fig. 31

8. Bei diesem Oszillogramm muß die Höhe von P 3 eingestellt werden.

8. When this oscilloscope appears, adjust the height of P 3.

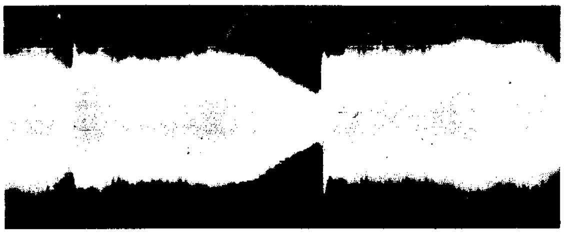

Abfall der Hüllkurve am Ende der Spur
Drop of envelope level at the end of track

Fig. 32

9. Wurden P 2 und P 3 richtig eingestellt, so ergibt sich dieses Oszillogramm.

9. If P 2 and P 3 have been adjusted correctly this oscilloscope appears.

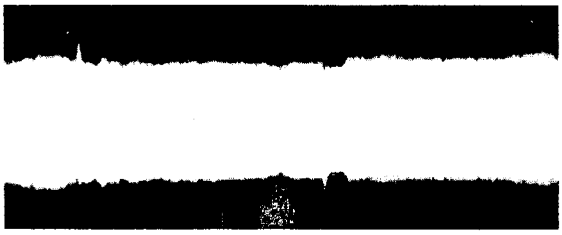

Hüllkurve korrekt abgeglichen
Envelope is adjusted properly

Fig. 33

13. Einstellung des Ton- und Synchronkopfes

13.1 Einstellung der Horizontallage des Ton- und Synchronkopfes

1. Den Spurregler (Tracking) in die Raststellung drehen und das Oszilloskop an TP 3001 anschließen (Triggerung über TP 2001).
2. Die Testcassette wiedergeben und den Kurvenverlauf betrachten. In der Raststellung des Spurreglers (TRACKING) muß die Kurve das Maximum erreichen.
3. Falls ein Nachgleich erforderlich ist, den Spezial-Schraubendreher 8 627 000 731 in den Schlitz der Abgleichmutter setzen und auf maximale Hüllkurve abgleichen.

13. Adjustment of A/C Head

13.1 Horizontal Position Adjustment of A/C Head

1. Set the tracking control to stop position, and connect the oscilloscope to TP 3001 (triggering via TP 2001).
2. Play back the alignment cassette and observe the RF envelope. When the tracking control is in lock position, the curve has to reach its maximum.
3. If readjustment is required, place the fine adjustment screwdriver 8 627 000 731 into the slit of the adjustment nut and obtain the maximum envelope curve.

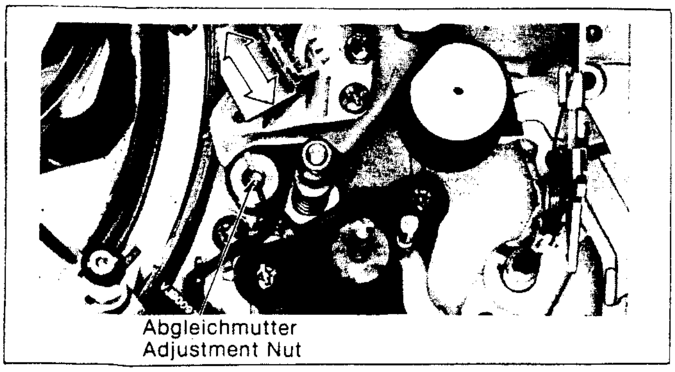


Fig. 34

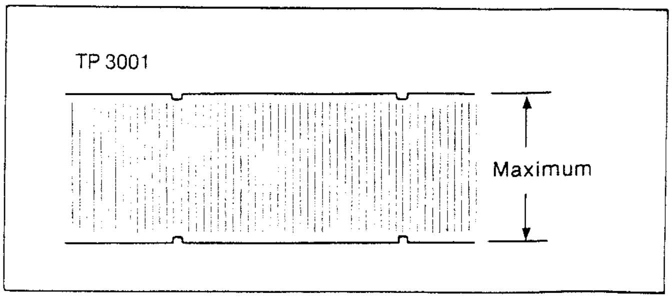


Fig. 35

13.2 Die Höheneinstellung des Ton- und Synchronkopfes

Diese Einstellung ist nur erforderlich, wenn der Ton- und Synchronkopf ersetzt wurde.

1. Die VHS-Testcassette abspielen und überprüfen, ob der untere Rand des Bandes über den unteren Rand des Synchronkopfes läuft.
2. Falls das nicht der Fall ist, langsam an der Mutter (A) drehen. Zum Absenken rechtsherum drehen und zum Anheben links herumdrehen.

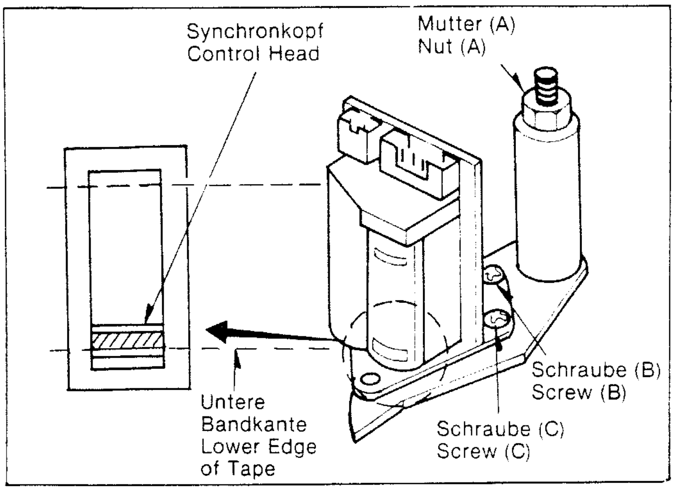

Synchronkopf
Control Head
Mutter (A)
Nut (A)
Schraube (B)
Screw (B)
Untere
Bandkante
Lower Edge
of Tape
Schraube (C)
Screw (C)

Fig. 36

Feinabgleich

3. Das Oszilloskop an die AUDIO-OUT-Buchsen anschließen.
4. Den Signalteil (1 kHz) der VHS-Testcassette abspielen (Normaltonspur).
5. Nun die Mutter (A) auf maximalen Ausgangspegel einstellen.

13.3 Prüfung der Neigung des Ton- und Synchronkopfes

Diese Prüfung sollte erst nach der Höheneinstellung der Bandführung P 4 erfolgen.

1. Eine Cassette abspielen und während des Ablaufes prüfen, ob das Band zwischen der oberen und der unteren Begrenzung der Bandführung läuft.
2. Wenn sich das Band am oberen oder unteren Rand kräuselt oder wenn es flattert, ist das mit der Schraube (B) Fig. 36/37 der Kopfbefestigung zu korrigieren.

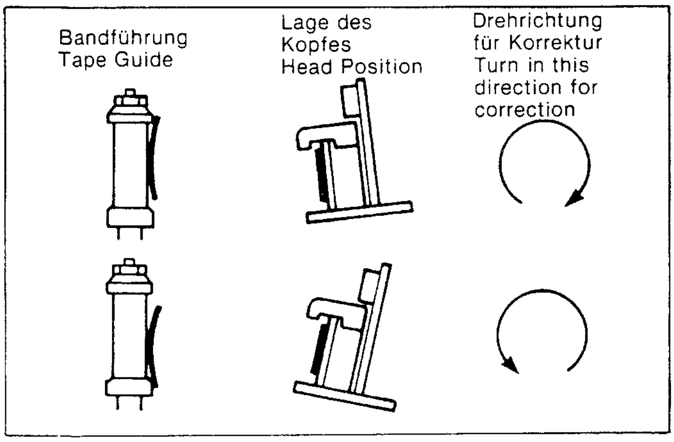

Bandführung
Tape Guide
Lage des
Kopfes
Head Position
Drehrichtung
für Korrektur
Turn in this
direction for
correction

Fig. 38

Feinabgleich:

1. Das Oszilloskop an TP 3001 anschließen (Triggerung über TP 2001).
2. Das Testbild der VHS-Testcassette abspielen und mit der Schraube (B) auf max. Amplitude der Hüllkurve abgleichen.

13.4 Azimuth-Einstellung des Ton- und Synchronkopfes

1. Das Oszilloskop an die AUDIO-OUT-Buchsen anschließen.
2. Den Signalteil (1 kHz) der VHS-Testcassette wiedergeben (Normaltonspur).
3. Die Schraube (C) Fig. 36/37 des Ton- und Synchronkopfes auf Maximum des Ausgangspegels einstellen.

13.2 Adjustment of A/C Head Height

This adjustment is only required if the A/C head has been replaced.

1. Play back the VHS alignment cassette and make sure that the lower edge of tape runs along the lower edge of the control head.
2. If this is not the case, turn the nut (A) slowly. Turn clockwise for lowering and counterclockwise for raising.

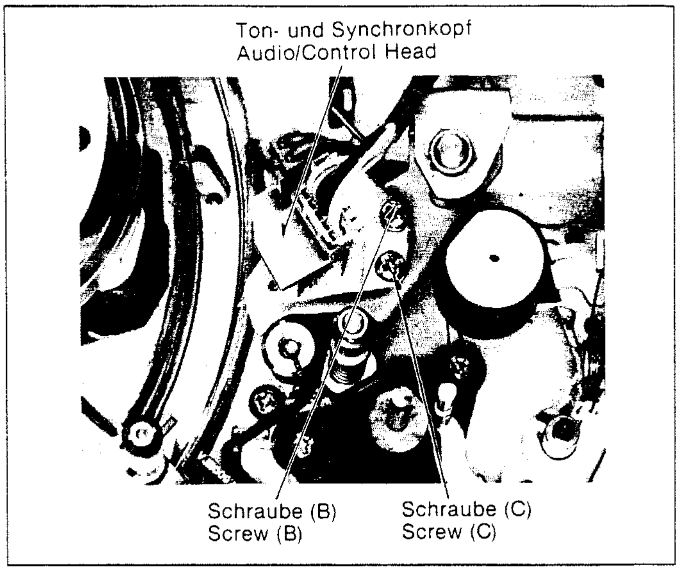

Ton- und Synchronkopf
Audio/Control Head
Schraube (B)
Screw (B)
Schraube (C)
Screw (C)

Fig. 37

Fine Adjustment:

3. Connect the oscilloscope to the AUDIO OUT jacks.
4. Play back the signal part (1 kHz) of the VHS alignment cassette (Normal track).
5. Now adjust the nut (A) to maximum output level.

13.3 Tilt Analysis of A/C Head

This analysis should be obtained only after the height adjustment of post P 4.

1. Play back a cassette and check during the running if the tape runs between the top and the lower limits of post P 4.
2. If the tape curls or flutters at the upper or lower edge, correct this with screw (B), fig. 36/37, of the headset.

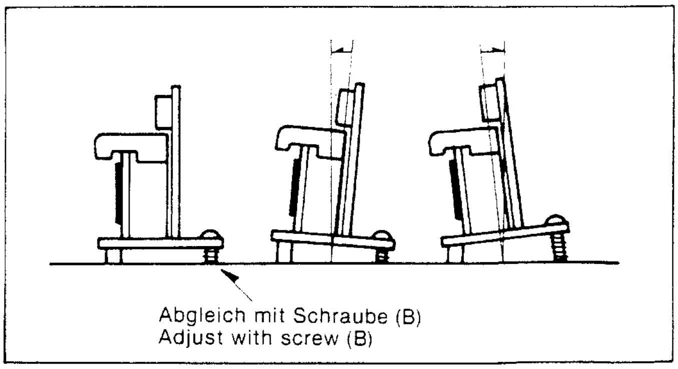

Abgleich mit Schraube (B)
Adjust with screw (B)

Fig. 39

Fine Adjustment:

1. Connect the oscilloscope to TP 3001 (triggering via TP 2001).
2. Play back the test signal of the VHS test cassette and obtain maximum amplitude ot the envelope curve by adjusting screw (B).

13.4 Azimuth Adjustment of A/C Head

1. Connect the oscilloscope to the AUDIO OUT jacks.
2. Play back the signal part (1 kHz) of the VHS alignment cassette (Normal track).
3. Adjust the screw (C), fig. 36/37, of the A/C head to maximum output level.

14. Einstellung der Lage des Impulskopfes am Capstanmotor (FG Head)

Erforderliche Ausrüstung:
Spezial-Schraubendreher 8 627 000 543
Spezifikation: 0,16 ± 0,04 mm

1. Die beiden Schrauben (A) lösen und den Spezial-Schraubendreher in das Loch (B) setzen (Fig. 41).
   Nun durch Drehen einen Abstand von 0,16 ± 0,04 mm einstellen und die Schrauben (A) festziehen.

14. Adjustment of the FG Head Position on the Capstan Motor

Required equipment:
Fine Adjustment Screwdriver 8 627 000 543
Specification: 0.16 ± 0.04 mm

1. Loosen the 2 screws (A) and place the fine adjustment screwdriver in the hole (B), fig. 41.
   Adjust now by turning to a distance of 0.16 ± 0.04 mm and tighten the screws (A).

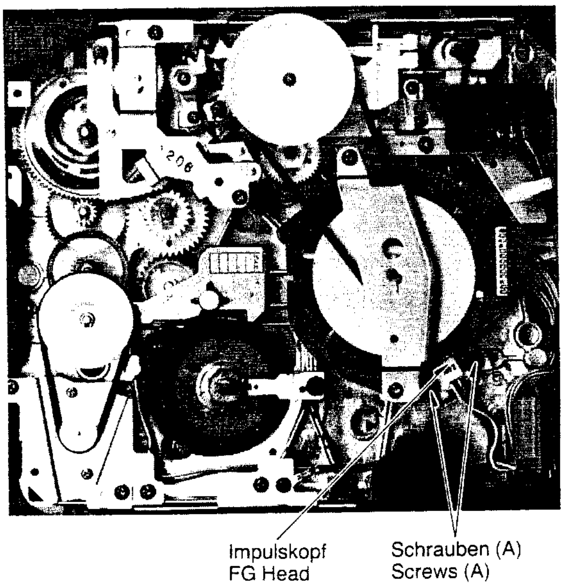

Impulskopf
FG Head
Schrauben (A)
Screws (A)

Fig. 40

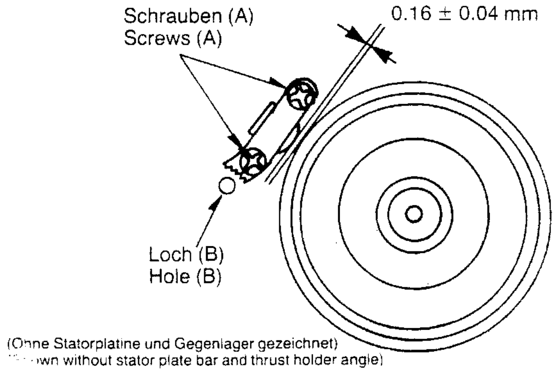

Schrauben (A)
Screws (A)
0.16 ± 0.04 mm
Loch (B)
Hole (B)
(Ohne Statorplatine und Gegenlager gezeichnet)
(Drawn without stator plate bar and thrust holder angle)

Fig. 41

Hinweis:
Keine Metallfühlerlehren, sondern Papier- oder Pappstreifen verwenden.

Hint:
Use paper or cardboard strips instead of metal probe gauges.

15. Überprüfung und Einstellung der Lage der Capstan-Rotorplatte

Erforderliche Ausrüstung:
Höhenmeßuhr 8 627 000 724
Spezifikation: 0,05 ~ 0,1 mm

1. Den Fuß von der Höhenmeßuhr entfernen und die Höhenmeßuhr auf das Gegenlager setzen. Die Anzeige auf „0" eichen (Fig. 42).
2. Nun die Capstanwelle bewegen und die Anzeige ablesen.
3. Liegt die Anzeige außerhalb der Spezifikation (0,05 ~ 0,1 mm), den Abstand mit der Einstellschraube (Fig. 42) einstellen.
4. Nun die Schraube mit Lack sichern.

15. Testing and Adjusting of the Position of the Capstan Rotary Plate

Required equipment:
Reel Table Height Gauge 8 627 000 724
Specification: 0.05 ~ 0.1 mm

1. Remove the support from the height gauge and place it on the thrust holder angle. Set the gauge to "0", fig. 42.
2. Now move the capstan rotary plate and read the value of the gauge.
3. If the value does not meet the specification (0.05 ~ 0.1 mm), adjust the distance with the adjusting screw, fig. 42.
4. Now varnish the screw for safety.

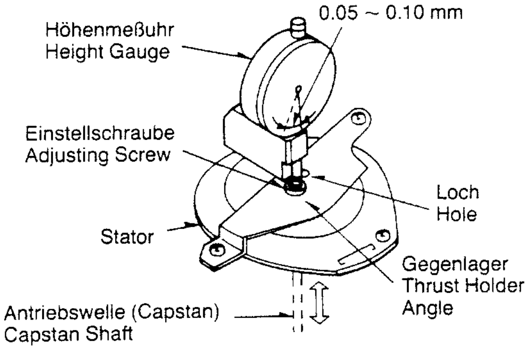

Höhenmeßuhr
Height Gauge
0.05 ~ 0.10 mm
Einstellschraube
Adjusting Screw
Loch
Hole
Stator
Gegenlager
Thrust Holder
Angle
Antriebswelle (Capstan)
Capstan Shaft

Fig. 42

16. Einstellung des Kurvenrades und des Funktionswahlschalters

Dieser Mechanismus ist zusammen mit dem Funktionswahlschalter und der Systemsteuerschaltung fast immer in Betrieb. Alle mechanischen Bewegungen von Hebeln, Getrieben und Rollen werden durch die Stellung des Funktionswahlschalters zusammen mit dem Kurvenrad bestimmt. Wenn sie nicht ordnungsgemäß justiert werden, wird die Cassette ausgefädelt oder es wird zwangsweise gestoppt. Dabei kann es zu Beschädigungen der mechanischen oder elektrischen Teile kommen.

1. Das Einfädelrad im Uhrzeigersinn drehen, bis die Bandführungen P2 und P3 vollständig frei sind. In der ausgefädelten Stellung ist die kleine Markierung am Einfädelrad oben (Fig. 44).

16. Adjustment of Cam Gear and Mode Select Switch

This mechanism is almost always operating, together with the mode select switch and the system control circuit. The relation between the mode select switch and cam gear determines all mechanical movements of levers, gears and rollers. In case of improper adjustment the cassette will be unloaded or stopped compulsorily. Mechanical or electrical parts may be damaged as a result.

1. Turn the loading gear clockwise until the posts P2 und P3 are fully unloaded. In unloaded position the small mark will be at the top part of the loading gear (fig. 44).

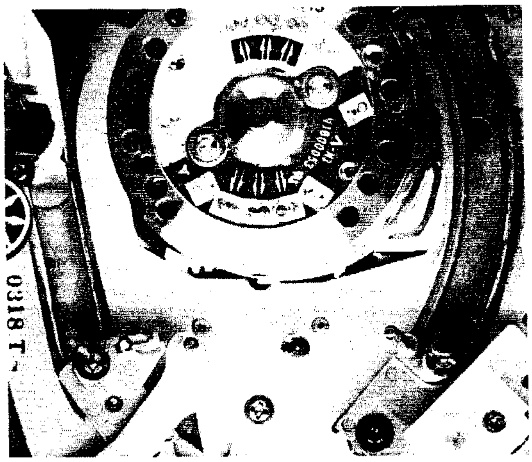


Fig. 43
Ausgefädelte Stellung
Condition of Unloading Completion

2. Das Übersetzungsrad so einbauen, daß die Bohrung des Übersetzungsrades mit der Marke des Einfädelrades übereinstimmt. Überprüfen, ob das Einfädelrad vollständig in der ausgefädelten Stellung steht.

2. Install the action gear so that the hole on the action gear meets the projection on the loading gear. Ensure that the loading gear is still in the condition of the complete unloading.

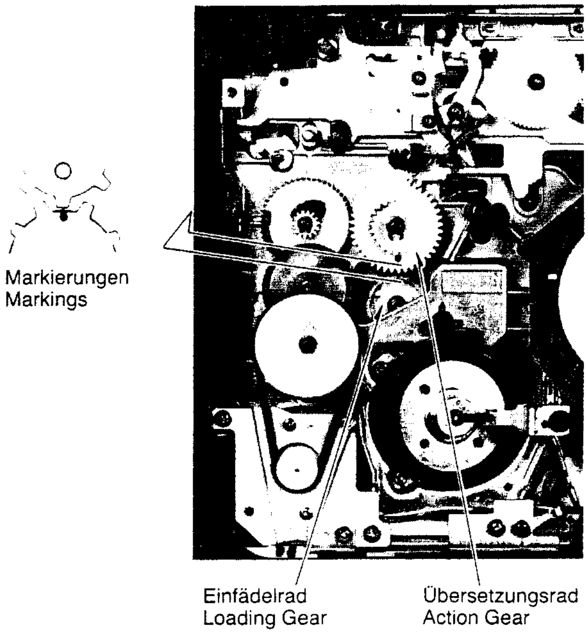


Fig. 44

3. Den Hauptschieber langsam verschieben, bis seine V-förmige Markierung mit der V-Markierung des Funktionswahlschalters übereinstimmt (Fig. 45). Damit wird die Stopstellung des Hauptschiebers und des Funktionswahlschalters simuliert (vollständig ausgefädelt).

3. Slide the main rod slowly until its V-shaped mark meets the V-shaped mark on the mode select switch (Fig. 45). This causes simulation of the stop position of the main rod and mode select switch (completely unloaded).

4. Das Kurvenrad so einsetzen, daß dessen Loch mit der Bohrung des Hauptschiebers übereinstimmt. Zur leichteren Justierung dient der kleine Sechskantschlüssel oder ein Metallstift. Die zwei V-förmigen Markierungen müssen weiterhin fixiert sein.

4. Insert the cam gear so that its hole meets the hole on the main rod. For easier setting use the small hexagonal wrench or a metal pin. The two V-shaped marks also have to be fixed.

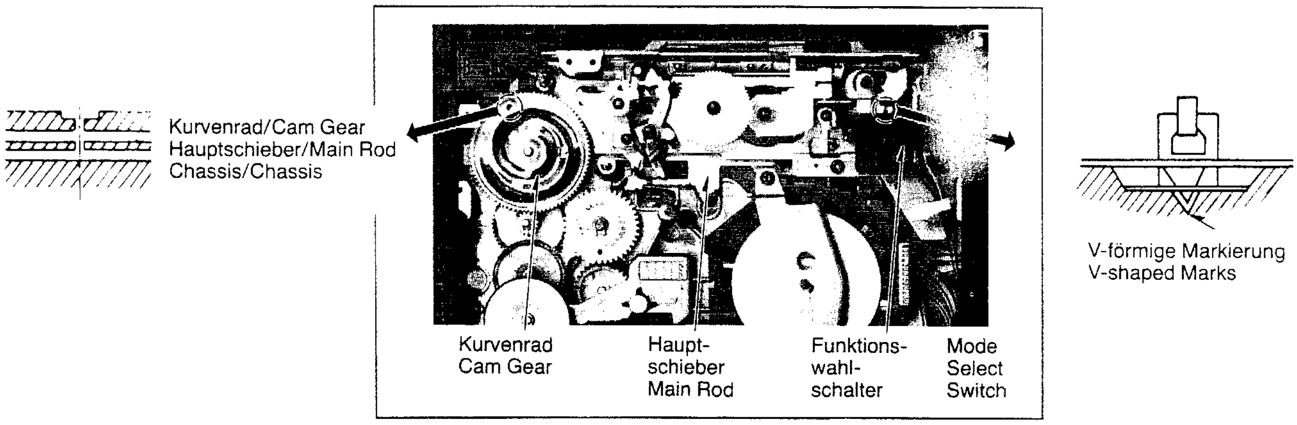

Kurvenrad/Cam Gear
Hauptschieber/Main Rod
Chassis/Chassis
V-förmige Markierung
V-shaped Marks
Kurvenrad
Cam Gear
Haupt-schieber
Main Rod
Funktions-wahl-schalter
Mode Select Switch

Fig. 45

5. Den Getriebehebel nun so einbauen, daß der Stift des Hebels in den inneren Schlitz des Kurvenrades paßt. Zwei Sicherungsringe zur Befestigung des Kurvenrades und des Getriebehebels einsetzen. Anschließend die Riemenscheibe aufsetzen, mit einem Sicherungsring befestigen und den Antriebsriemen auflegen.

5. Insert the sector gear so that the pin of the lever meets the inner slit of the cam gear. Install 2 retaining rings for fixing the cam gear and sector gear.
Then mount the pulley, fix it with a retaining ring and place the driving belt in position.

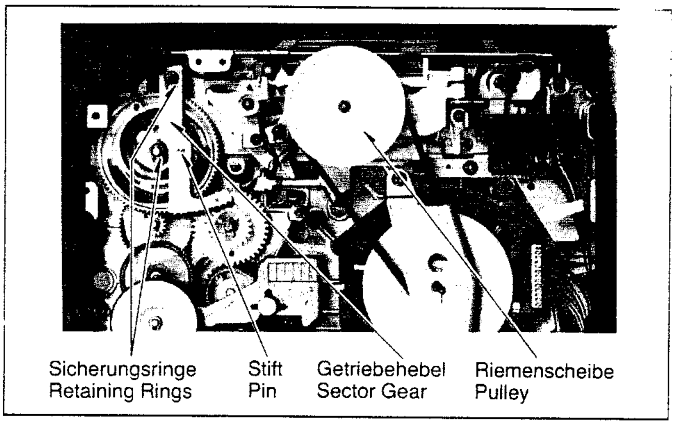

Sicherungsringe
Retaining Rings
Stift
Pin
Getriebehebel
Sector Gear
Riemenscheibe
Pulley

Fig. 46

6. Das endgültige Aussehen entspricht der Fig. 46. Gleichzeitig müssen die beiden V-Markierungen von Funktionswahlschalter und Hauptschieber fixiert sein.
7. Nun den Radbügel einsetzen und mit den 2 Schrauben (A) befestigen (Fig. 47).

6. The final view is shown in fig. 46. At the same time the two V-shaped marks of the mode select switch and the main rod have to be fixed.
7. Now insert the gear bracket and tighten the 2 screws (A) fig. 47.

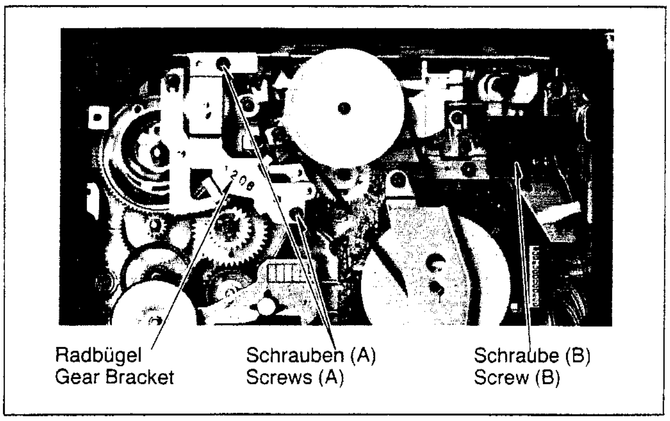

Radbügel
Gear Bracket
Schrauben (A)
Screws (A)
Schraube (B)
Screw (B)

Fig. 47

Hinweis:
Bei der Montage die Unterlegscheiben nicht vergessen.

Feinabgleich des Funktionswahlschalters

1. Das Gerät muß in der Ausgangslage „Stop-Zustand" sein.
2. Die Schraube (B), Fig. 47 lösen.
3. Dann den Funktionswahlschalter so einstellen, daß die beiden V-förmigen Markierungen auf gleicher Höhe stehen. Die Schraube (B) wieder festziehen.
4. Nun die Funktionsfähigkeit des Ein- und Ausfädelvorgangs überprüfen.

Hint:
Do not forget the washers during assembly.

Fine Adjustment of the Mode Select Switch

1. The starting position of the deck has to be the "STOP" position.
2. Loosen the screw (B), fig. 47.
3. Adjust the position of the mode select switch so that both V-shaped marks of the mode select switch just meet. Then tighten screw (B).
4. Make sure that loading and unloading are performed correctly.

Elektrischer Abgleich

In diesem Abgleich werden alle erforderlichen elektrischen Einstellarbeiten beschrieben.

1. Folgende Ausstattung wird benötigt:

1.1 Röhrenvoltmeter oder hochohmiges Digital-Voltmeter für 1 mV bis 50 Volt
1.2 Zweistrahl-Oszilloskop, Spannungsbereich: 5 mV bis 50 Volt pro Teilung. Frequenzbereich: Gleichspannung bis 10 MHz. Tastköpfe 10:1 und 1:1
1.3 Frequenzzähler, Frequenzbereich: 0 bis 10 MHz
1.4 Wobbelgenerator Frequenzbereich: 0 bis 10 MHz
1.5 Farbfernsehgerät oder Monitor
1.6 Schraubendreher/Abgleichstift
1.7 VHS-Testcassette, Best.-Nr. 8627000540

2. Der elektrische Abgleich gliedert sich in:

2.1 Servoteil
2.2 Luminanz-, Farb- und Kopfverstärkerteil
2.3 Tonteil
2.4 Timerteil
2.5 TV-Demodulatorteil
2.6 Dekoderteil

Electrical Adjustment Procedure

All required electrical adjustment procedures are described in this section.

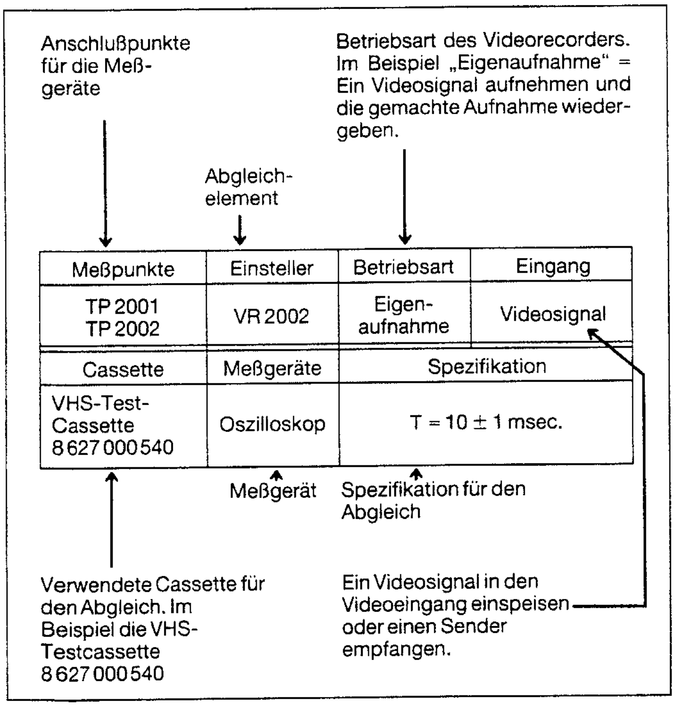
1. The following equipment is required:

1.1 VTVM (Vacuum Tube Volt Meter) or DVM (Digital Volt Meter). Volt Range: 0.001 – 50 V
1.2 Dual-Trace Oscilloscope, Volt Range: 0.005 – 50 V per section, Frequency Range: DC – 10 MHz, Probes: 10:1 and 1:1
1.3 Frequency Counter, Frequency Range: 0 – 10 MHz
1.4 Sweep Generator, Frequency Range: 0 – 10 MHz
1.5 Color TV Set or Monitor
1.6 Screwdriver/Alignment Pin
1.7 VHS Alignment Tape, Part No. 8627000540

2. The electrical adjustment is divided into:

2.1 Servo Section
2.2 Luminance, Chrominance and Head Amp. Section
2.3 Audio Section
2.4 Timer Section
2.5 TV Demodulator Section
2.6 Decoder Section

Wie die Abgleichanleitung gelesen wird:


Anschlußpunkte für die Meßgeräte

Abgleichelement

Betriebsart des Videorecorders. Im Beispiel „Eigenaufnahme" = Ein Videosignal aufnehmen und die gemachte Aufnahme wiedergeben.

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 2001 TP 2002	VR 2002	Eigenaufnahme	Videosignal

Cassette	Meßgeräte	Spezifikation
VHS-Test-Cassette 8627000540	Oszilloskop	T = 10 ± 1 msec.

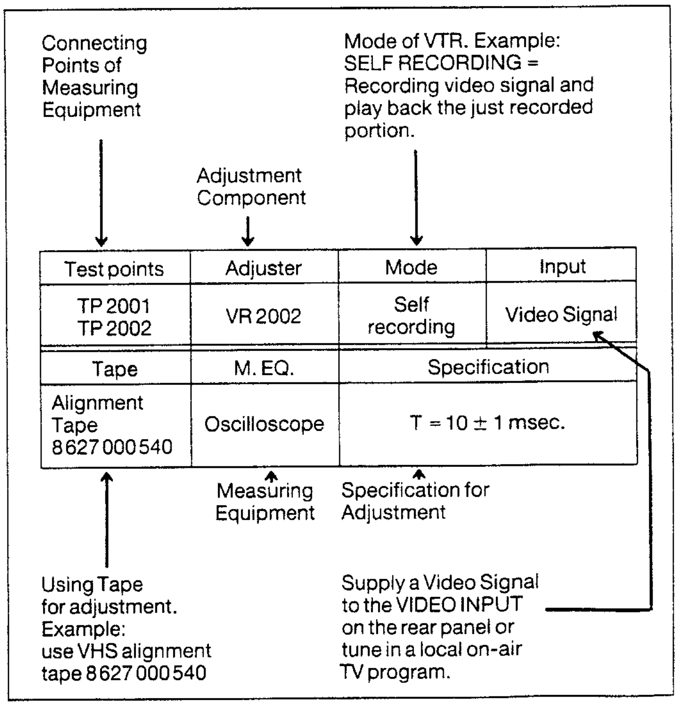
Meßgerät

Spezifikation für den Abgleich

Verwendete Cassette für den Abgleich. Im Beispiel die VHS-Testcassette 8627000540

Ein Videosignal in den Videoeingang einspeisen oder einen Sender empfangen.

How to Read the Adjustment Procedures:


Connecting Points of Measuring Equipment

Adjustment Component

Mode of VTR. Example: SELF RECORDING = Recording video signal and play back the just recorded portion.

Test points	Adjuster	Mode	Input
TP 2001 TP 2002	VR 2002	Self recording	Video Signal

Tape	M. EQ.	Specification
Alignment Tape 8627000540	Oscilloscope	T = 10 ± 1 msec.

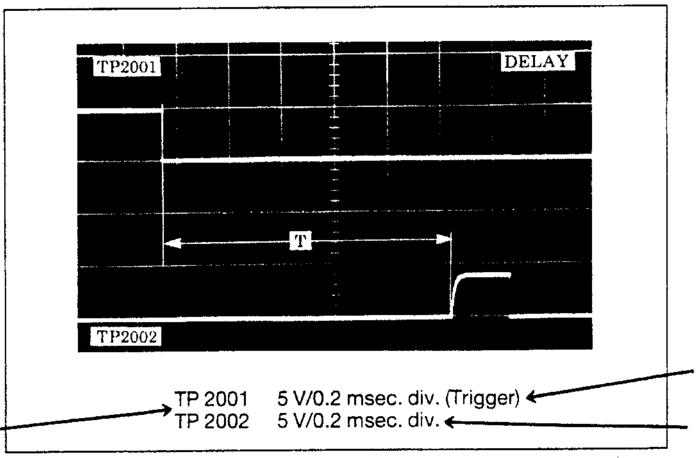
Measuring Equipment

Specification for Adjustment

Using Tape for adjustment. Example: use VHS alignment tape 8627000540

Supply a Video Signal to the VIDEO INPUT on the rear panel or tune in a local on-air TV program.

Fig. 1



TP 2001 5 V/0.2 msec. div. (Trigger)
TP 2002 5 V/0.2 msec. div.

Meßpunkte für das Oszilloskop
Connecting points of a scope

Triggerkanal des Oszilloskops
Trigger channel of a scope

Teilereinstellung des Oszilloskops
Division of a scope.

Fig. 2

2.1 Servoteil

2.1.1 Einstellung der Lage des Kopfumschaltimpulses

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 2001 TP 3002	VR 2001	Wiedergabe	
Cassette	Meßgeräte	Spezifikation	
VHS-Test-cassette 8 627 000 540	Oszilloskop	6,5 ± 0.5 Zeilen	

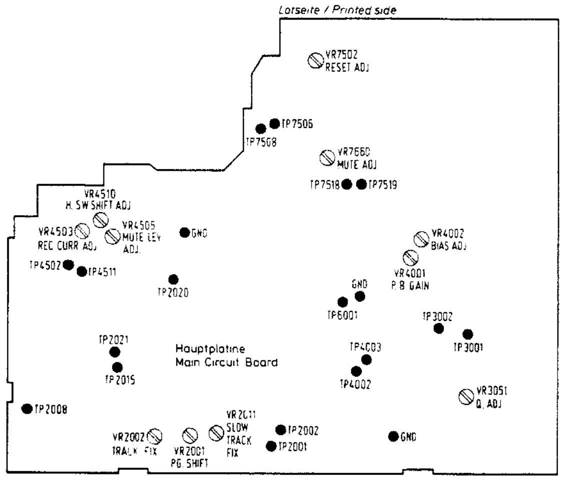

Lotseite / Printed side
VR7502
RESET ADJ
TP7506
TP7508
VR7660
MUTE ADJ
TP7518
TP7519
VR4510
H. SW SHIFT ADJ
VR4503
REC CURR ADJ
VR4505
MUTE LEV
ADJ
GND
VR4002
BIAS ADJ
TP4502
TP4511
TP2020
VR4001
P. B GAIN
GND
TP6001
TP3002
TP3001
TP2021
Hauptplatine
Main Circuit Board
TP4003
TP4002
TP2015
VR3051
Q. ADJ
TP2008
VR2011
SLOW
TRACK
FIX
VR2002
TRACK FIX
VR2001
PG. SHIFT
TP2002
TP2001
GND

Fig. 3

2.1.2 Einstellung der Spurlage (Tracking)

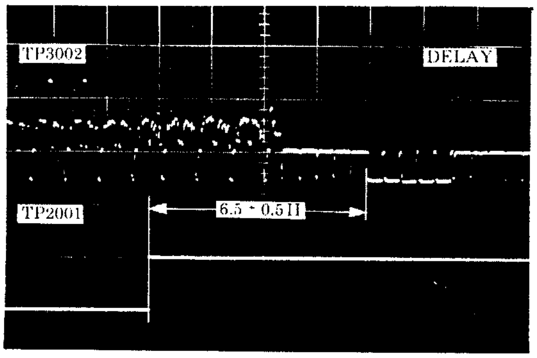
Meßpunkte	Einsteller	Betriebsart	Eingang
TP 2001 TP 2002	VR 2002	Eigenaufnahme	Videosignal
Cassette	Meßgeräte	Spezifikation	
VHS-Cassette	Oszilloskop	T = 0,4 ± 0,4 msec.	

1. Den Spureinsteller (TRACKING) in die Raststellung drehen.
2. Die gerade gemachte Aufnahme wiedergeben.
3. Mit VR 2002 auf 0,4 ± 0,4 msec. einstellen (Fig. 5).

2.1 Servo Section

2.1.1 PG Shifter Adjustment

Test points	Adjuster	Mode	Input
TP 2001 TP 3002	VR 2001	Play	
Tape	M. EQ.	Specification	
VHS-Alignment Tape 8 627 000 540	Oscilloscope	6,5 ± 0,5 H	


TP3002
DELAY
TP2001
6.5 ~ 0.5H

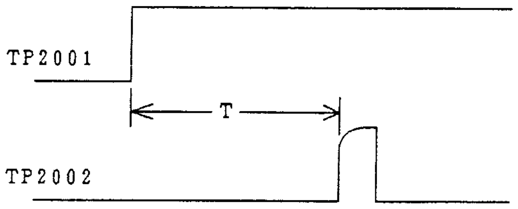
TP 3002 1 V/0.1 msec. div.
TP 2001 5 V/0.1 msec. div. (Trigger)

Fig. 4

2.1.2 Tracking Fix Adjustment

Test points	Adjuster	Mode	Input
TP 2001 TP 2002	VR 2002	Self recording	Video signal
Tape	M. EQ.	Specification	
VHS Tape	Oscilloscope	T = 0,4 ± 0,4 msec.	

1. TRACKING VR in center fix position.
2. Play back the just recorded portion.
3. Adjust VR 2002 for 0,4 ± 0,4 msec. as shown below in fig. 5.


TP2001
T
TP2002

TP 2001 5 V/0,1 msec. div. (Trigger)
TP 2002 5 V/0,1 msec. div.

Fig. 5

2.1.3 Einstellung der Spurlage SLOW-TRACKING

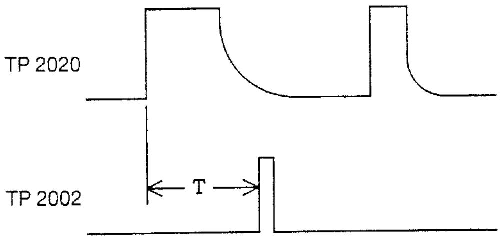
Meßpunkte	Einsteller	Betriebsart	Eingang
TP 2020 TP 2002	VR 2011	Eigenaufnahme	Videosignal
Cassette	Meßgeräte	Spezifikation	
VHS-Cassette	Monitor Oszilloskop		

1. Den SLOW-TRACKING-Einsteller in die Raststellung drehen.
2. Die gerade gemachte Aufnahme in Zeitlupe (SLOW) wiedergeben.
3. VR 2011 so einstellen, daß die Verwirrungszone vom Bildschirm verschwindet (der Abstand „T" in Fig. 6 beträgt dann ca. 32,5 ± 2,5 msec.

2.1.3 Slow Tracking Fix Adjustment

Test points	Adjuster	Mode	Input
TP 2020 TP 2002	VR 2011	Self recording	Video signal
Tape	M. EQ.	Specification	
VHS-Tape	Monitor TV, Oscilloscope		

1. SLOW-TRACKING VR in center position.
2. Play back the just recorded portion in slow mode.
3. Adjust VR 2011 so that the noise does not appear on the TV Monitor Screen (Distance "T" in fig. 6 then amannts to 32,5 ± 2,5 msec.).



Ch 1: 200 mV/div. (TP 2020 Trigger); Ch 2: 2 V/div. (TP 2002);
Zeitbasis/Time base: 5 msec./div.; Trigger: Ch 1, DC, pos.

Fig. 6

2.1.4 Einstellung des Standbildes

Meßpunkte	Einsteller	Betriebsart	Eingang
	VR 2003	Eigenaufnahme	Videosignal
Cassette	Meßgeräte	Spezifikation	
VHS-Cassette	Monitor		

1. Die gerade gemachte Aufnahme wiedergeben und den Recorder auf „Standbild" schalten.
2. Mit VR 2003 (Servo-Zusatzplatine) das Bildzittern auf Minimum einstellen.

2.2 Luminanz-, Farb- und Kopfverstärkerteil

2.2.1 Kontrolle des E-E Pegels

(Einstellung siehe Punkt 2.2.5 auf Seite 26)

Meßpunkte	Einsteller	Betriebsart	Eingang
VIDEO OUT		Stop	Farbbalkensignal
Cassette	Meßgeräte	Spezifikation	
	Oszilloskop	$1{,}0 \pm 0{,}1\ V_{ss}$	

2.1.4 Artificial V-Sync Adjustment

Test points	Adjuster	Mode	Input
	VR 2003	Self recording	Video signal
Tape	M. EQ.	Specification	
VHS-Tape	Monitor TV		

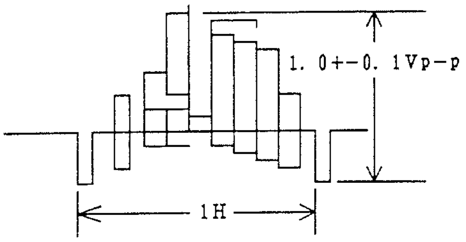
1. Play back the just recorded portion in STILL mode.
2. Adjust VR 2003 (Servo Pack C. B.) so that the V-dancing does not appear on the TV Monitor Screen.

2.2 Luminance, Chrominance and Head Amp. Section

2.2.1 E-E Level Control

(for adjustment pls. refer to item 2.2.5 on page 26)

Test points	Adjuster	Mode	Input
VIDEO OUT		Stop	Colour Bar Signal
Tape	M. EQ.	Specification	
	Oscilloscope	$1{,}0 \pm 0{,}1\ V_{pp}$	



VIDEO OUT
Mit 75 Ω nach Masse abschließen
Condition: 75 Ω terminated

Fig. 7

2.2.2 Aufnahmestrom-Einstellung für Luminanz- und Farbsignal

- Aufnahmestrom-Einstellung des Farbsignals

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 503 (Heiß) TP 504 (Masse)	VR 502 (Kopfverstärker)	Aufnahme	Videosignal
Cassette	**Meßgeräte**	**Spezifikation**	
VHS-Cassette	Oszilloskop	28 ± 3 mV_{ss}	

1. Das Oszilloskop an TP 503 (Heiß) und TP 504 (Masse) anschließen.
2. Das Luminanzsignal mit VR 501 auf Null stellen, um das Farbsignal zu erkennen.
3. Mit VR 502 den Farb-Aufnahmestrom auf 28 ± 3 m V_{ss} einstellen (Fig. 8).

2.2.2 Luminance and Chrominance Recording Current Adjustment

- Chrominance Recording Current Adjustment

Test points	Adjuster	Mode	Input
TP 503 (Hot) TP 504 (GND)	VR 502 (Head Amp. Pack)	Recording	Video signal
Tape	**M. EQ.**	**Specification**	
VHS-Tape	Oscilloscope	28 ± 3 mV_{p-p}	

1. Connect the Oscilloscope to TP 503 (HOT) and TP 504 (GND).
2. Before chrominance recording current adjustment, Luminance recording current must be closed to observe the chrominance signal.
3. Adjust VR 502 for 28 ± 3 mV_{p-p} as shown below.

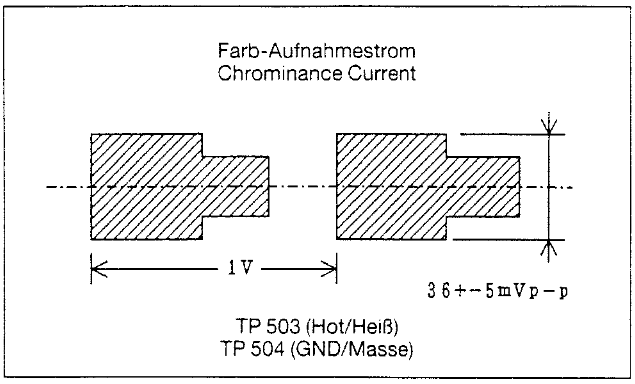


Fig. 8

- Aufnahmestrom-Einstellung des Luminanzsignals

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 503 (Heiß) TP 504 (Masse)	VR 501 (Kopfverstärker)	Aufnahme	Videosignal
Cassette	**Meßgeräte**	**Spezifikation**	
VHS-Cassette	Oszilloskop	120 ± 5 mV_{ss}	

4. Nachdem der Farb-Aufnahmestrom eingestellt wurde, mit VR 501 den Luminanz-Aufnahmestrom auf 120 ± 5 mV_{ss} einstellen (Fig. 9).

- Luminance Recording Current Adjustment

Test points	Adjuster	Mode	Input
TP 503 (Hot) TP 504 (GND)	VR 501 (Head Amp. Pack)	Recording	Video signal
Tape	**M. EQ.**	**Specification**	
VHS-Tape	Oscilloscope	120 ± 5 mV_{p-p}	

4. After chrominance recording current adjustment, adjust VR 501 for 120 ± 5 mV_{p-p} as shown below.

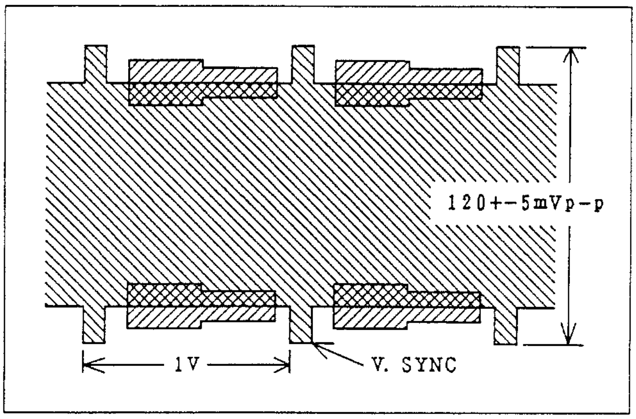


Fig. 9

2.2.3 Einstellung des Kopfverstärker-Frequenzganges

Meßpunkte	Einsteller	Betriebsart	Eingang
Videoausgang (VIDEO OUT)	VR 3051	Eigenaufnahme	Videowobbler (VIDEO IN)

Cassette	Meßgeräte	Spezifikation
VHS-Cassette	Videowobbler, Sichtgerät	

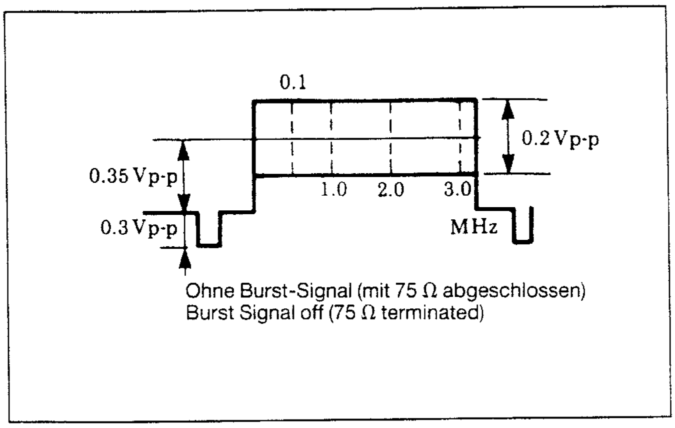
1. Die Ausgangsspannung des Wobblers wie in Fig. 10/11 gezeigt einstellen.

2.2.3 Head Amp.Frequenz Response Adjustment

Test points	Adjuster	Mode	Input
VIDEO OUT	VR 3051	Self recording	Video sweep (VIDEO IN)

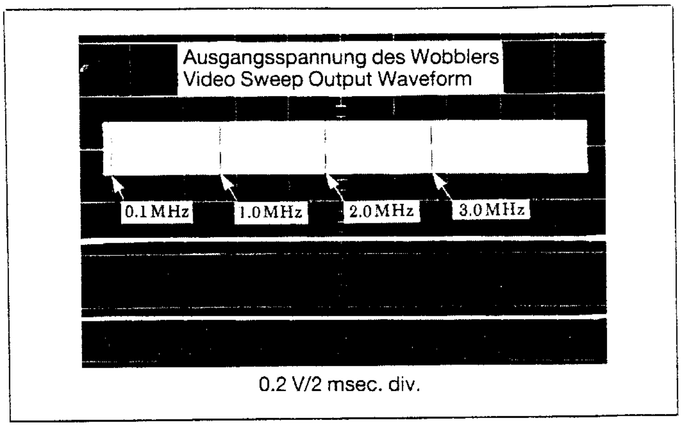
Tape	M. EQ.	Specification
VHS Tape	Video Sweep, Oscilloscope	

1. Set the sweep generator output as shown below (fig. 10/11).



Ohne Burst-Signal (mit 75 Ω abgeschlossen)
Burst Signal off (75 Ω terminated)

Fig. 10

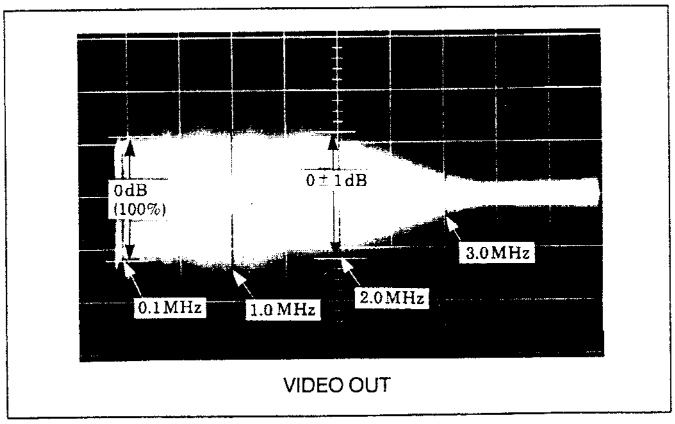


0.2 V/2 msec. div.

Fig. 11

2. Den Einsteller PICTURE in die Raststellung drehen.
3. Den „DETAIL"-Schalter (Rückseite) auf NORMAL stellen.
4. Die gerade gemachte Aufnahme wiedergeben.
5. Mit VR 3051 eine Kurvenform wie in Fig. 12 gezeigt einstellen.

2. PICTURE VR in center position.
3. Set the "DETAIL SW" (Rear side) to the NORMAL position.
4. Play back the just recorded portion.
5. Adjust VR 3051 so that the waveforms become as shown below (Fig. 12).



VIDEO OUT

Fig. 12

2.2.4 Einstellung des Farb-Wiedergabepegels

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 3002	VR 801	Eigenaufnahme	Videosignal

Cassette	Meßgeräte	Spezifikation
VHS-Cassette	Oszilloskop	0,55 V_{ss} ± 0,05 V_{ss}

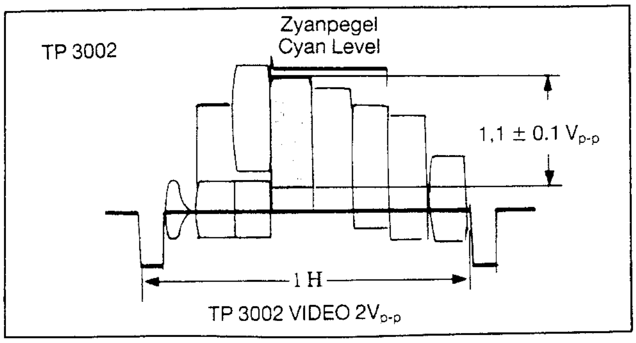
1. Das soeben aufgenommene Stück wiedergeben.
2. Mit VR 801 (Luminanz- und Farbplatine) einen Zyanpegel von 1,1 V_{ss} ± 0,1 V_{ss} einstellen.

2.2.4 Playback Chroma Level Adjustment

Test points	Adjuster	Mode	Input
TP 3002	VR 801	Self Recording	Video Signal

Tape	M. EQ.	Specification
VHS-Tape	Oscilloscope	0.55 V_{p-p} ± 0.05 V_{p-p}

1. Playback the just recorded portion.
2. Adjust VR 801 (Luminance and Chrominance Pack C. B.) for 1.1 ± 0.1 V_{p-p} Cyan Level.



TP 3002 VIDEO 2V_{p-p}

Fig. 13

2.2.5 HQ-Verstärkungseinstellung

Meßpunkte	Einsteller	Betriebsart	Eingang
BP 3602/1 (CH-1) BP 3602/3 (CH-2)	VR 3011 (HQ-Zusatzpl.)	Stop	Videosignal
Cassette	Meßgeräte	Spezifikation	
	Oszilloskop	$0 \pm 10\,mV_{ss}$	

1. Den „DETAIL"-Schalter (Rückseite) auf NORMAL stellen.
2. Ein Testbild empfangen, den Kanal 1 des Oszilloskopes an den Anschluß BP 3602/1 und den Kanal 2 an BP 3602/3 anschließen.
3. Das Oszilloskop auf ADD-Mode schalten und den Kanal 2 auf Invertieren (–) stellen.
4. Mit VR 3011 ein minimales Signal $0 \pm 10\,mV_{ss}$ einstellen (Fig. 14). Die Signale an BP 3602/1 und BP 3602/3 sind dann gleich groß.

2.2.5 HQ Amp. Gain Adjustment.

Test points	Adjuster	Mode	Input
P 3602/1 (CH-1) P 3602/3 (CH-2)	VR 3011 (HQ Pack C. B)	Stop	Video signal
Tape	M. EQ.	Specification	
	Oscilloscope	$0 \pm 10\,mV_{p\text{-}p}$	

1. Set the "DETAIL SW" (Rear Side) to the NORMAL position.
2. To receive a test pattern connect channel 1 of the oscilloscope to BP 3602/1 and channel 2 to BP 3602/3.
3. Set the Oscilloscope to "ADD" mode and the polarity switch of CH-2 side to "INV" (Invert) mode.
4. Adjust the VR 3011 so that the differential signal becomes $0 \pm 10\,mV_{p\text{-}p}$ (Fig. 14).
   The signals at BP 3602/1 and BP 3602/3 will then se of the same level.

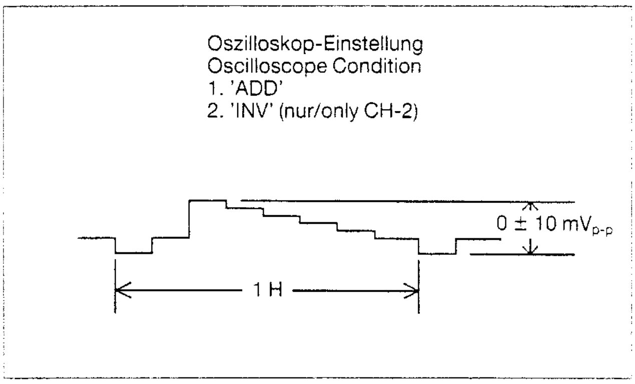


Fig. 14

2.2.6 HQ-Farbsignaleinstellung

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 8019	VR 8007 L 8501 (HQ-Zusatzpl.)	Stop	Farbbalken-Video-signal
Cassette	Meßgeräte	Spezifikation	
	Oszilloskop	Minimale Amplitude	

1. Ein Farbbalken-Testbild empfangen.
2. Das Oszilloskop an TP 8019 anschließen (HQ-Zusatzplatine)
3. Mit VR 8007 und L 8501 auf minimale Kurvenform (Fig. 15) abgleichen.

Hinweis:
Um L 8501 einstellen zu können, muß VR 8007 etwas verdreht werden. Nach der Einstellung von L 8501 dann VR 8007 auf minimale Kurvenform abgleichen.

2.2.6 Chroma Recursive Adjustment

Test points	Adjuster	Mode	Input
TP 8019	VR 8007 L 8501 (HQ Pack. C. B)	Stop	Color Bar Video signal
Tape	M. EQ.	Specification	
	Oscilloscope	Waveform is minimized	

1. Receive a colour bar pattern.
2. Connect the oscilloscope to TP 8019 (HQ Pack C. B).
3. Adjust to minimum curvature with VR 8007 and L 8501 (Fig. 15).

Note:
To adjust L 8501, VR 8007 has to turned slightly. After adjustment of L 8501, adjust VR 8007 to minimum curvature.

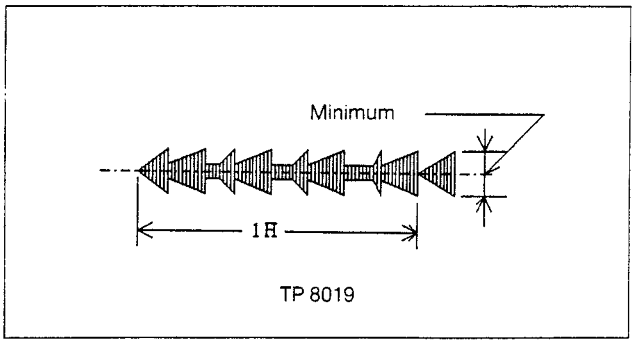


Fig. 15

Hinweis:
Um die Luminanz- und Farbplatine ohne HQ-Zusatzplatine zu prüfen, müssen zwei Drahtbrücken montiert werden.
(1) Eine Brücke von P 301/1 nach P 301/3
(2) Eine Brücke von P 801/1 nach P 801/3

Note:
To check the luminance and chrominance circuit without HQ pack, please connect a jumper wire as follows.
(1) Connect a jumper wire between P 301-1 and P 301-3.
(2) Connect a jumper wire between P 801-1 and P 801-3.

2.3 Tonteil

2.3.1 Einstellung der Vormagnetisierung

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 4002 (+) TP 4003 (–)	VR 4002	Aufnahme	
Cassette	**Meßgeräte**	**Spezifikation**	
VHS-Cassette	Millivoltmeter	3,9 ± 0,1 mV$_{eff}$	

2.3.2 Einstellung des Audio-Umschaltimpulses

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 4511 TP 2001	VR 4510 (Tonteil)	Eigenaufnahme	1 kHz, – 10 dB
Cassette	**Meßgeräte**	**Spezifikation**	
VHS-Cassette	Signalgenerator, Oszilloskop		

1. Den Eingangssignal-Wahlschalter (INPUT SELECT) auf „LINE/AUDIO" und die AUDIO REC LEVEL-Einsteller in die mittlere Raststellung schieben.
2. Den Signalgenerator an die beiden Eingangsbuchsen (AUDIO IN) anschließen.
3. Eine Aufnahme durchführen und diese wiedergeben (HIFI-Tonspur).
4. Den Einsteller VR 4510 drehen und dabei den Ton anhören.
   - Den Einsteller VR 4510 nach rechts drehen, bis der Ton verzerrt. Den Abstand (T") ablesen.
   - Nun den Einsteller VR 4510 nach links drehen, bis der Ton verzerrt. Den Abstand (T') ablesen.
   - Der richtige Abstand (T) liegt genau zwischen den Punkten (T' und T"), siehe Fig. 16

2.3 Audio Section

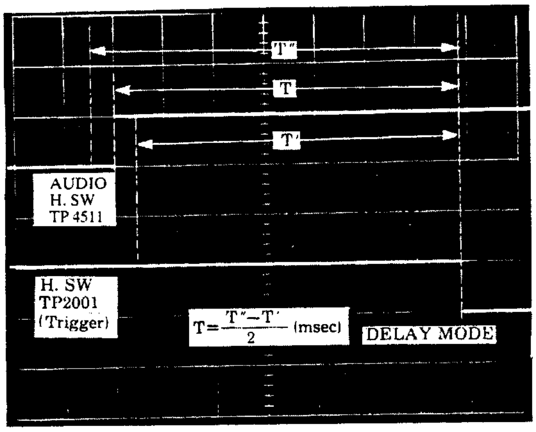
2.3.1 Audio Bias Current Adjustment

Test points	Adjuster	Mode	Input
TP 4002 (+) TP 4003 (–)	VR 4002	Rec. Play	
Tape	**M. EQ.**	**Specification**	
VHS-Tape	Millivoltmeter	3,9 ± 0.1 mV$_{rms}$	

2.3.2 Playback Audio SW Adjustment

Test points	Adjuster	Mode	Input
TP 4511 TP 2001	VR 4510 (Audio section)	Self recording	1 kHz, – 10 dB
Tape	**M. EQ.**	**Specification**	
VHS-Tape	Signal generator, Oscilloscope		

1. Set the Input Select SW of the deck to AUDIO mode and the AUDIO REC LEVEL VR's are center fix position.
2. Connect the signal generator output to the both Input Jacks (L) and (R).
3. Playback the just recorded portion (HiFi track).
4. Adjust the Playback Audio SW VR 4510 while listening to the stereo playback sound.
   - Confirm the T" time when the abnormal sound just occurs during tuning clockwise on VR 4510.
   - Confirm the T' time when the abnormal sound just occurs during tuning counter clockwise on VR 4510.
   - Adjust VR 4510 so that the falling edge T of the SHIFT H. SW pulse becomes the center portion of the both T' and T" (Fig. 16).



TP 4511 2 V/2 msec. div.
TP 2001 2 V/2 msec. div. (Trigger)

Fig. 16

2.3.3 Balance- und Empfindlichkeitseinstellung der Aussteuerungsanzeige

Meßpunkte	Einsteller	Betriebsart	Eingang
	VR 6202 VR 6201 (Bedienteilpl.)	Stop	1 kHz, – 10 dB
Cassette	**Meßgeräte**	**Spezifikation**	
	Signalgenerator, Millivoltmeter		

1. Mit der AUDIO SELECT-Taste auf STEREO schalten.
2. Den Signalgenerator an die beiden AUDIO-IN-Buchsen anschließen und die Einsteller AUDIO REC LEVEL so einstellen, daß an den AUDIO-OUT-Buchsen = 400 mV$_{eff}$ anstehen.
3. Mit VR 6201 die Aussteuerungsanzeige für den linken Kanal auf 0 dB einstellen.
4. Mit VR 6202 die Aussteuerungsanzeige für den rechten Kanal auf 0 dB einstellen.

2.3.3 Level Meter Sensitivity and Balance Adjustment

Test points	Adjuster	Mode	Input
	VR 6202 VR 6201 (Operation C. B)	Stop	1 kHz, – 10 dB
Tape	**M. EQ.**	**Specification**	
	Signal generator, Millivoltmeter		

1. Set the AUDIO SELECT SW to the STEREO position.
2. Connect the signal generator output to the both Input Jacks (L) and (R) and adjust the Recording level volume so that the AUDIO OUT levels becomes 400 mV$_{rms}$.
3. Adjust VR 6201 so that the 0 dB indication at the L-ch level meter just lights up.
4. Adjust VR 6202 so that the 0 dB indicator lights up on the R-ch level meter.

2.3.4 Einstellung des Audio-Aufnahmestromes

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 4507 (Heiß) Abschirmung (Masse) (Kopfverstärker)	VR 4503 (Tonteil)	Aufnahme	

Cassette	Meßgeräte	Spezifikation
VHS-Cassette	Oszilloskop	210 ± 10 mVss

2.3.5 Einstellung des Audio-Wiedergabepegels (Normalspur)

Meßpunkte	Einsteller	Betriebsart	Eingang
AUDIO-OUT Buchsen	VR 4001 (Normal)	Eigenaufnahme	1 kHz, – 10 dB Audiosignal und Videosignal

Cassette	Meßgeräte	Spezifikation
VHS-Cassette	Millivoltmeter, Signalgenerator	E-E Pegel = – 8 ± 2 dB Playback-Pegel = E-E ± 0,5 dB

E-E Pegel = Durchschleifpegel Playback-Pegel = Wiedergabepegel

Hinweis:
Vor dieser Einstellung muß der Punkt 13 (Einstellung des Ton- und Synchronkopfes auf Seite 16 – 17 durchgeführt werden.

1. Die Einsteller AUDIO REC LEVEL in die mittlere Raststellung stellen.
2. Eine Aufnahme durchführen und diese wiedergeben. (Die Mikrofonbuchse der Frontblende muß angeschlossen sein.)
3. Mit dem Einsteller VR 4001 (Normalspur) den Wiedergabepegel auf die Größe des Durchschleifpegels einstellen (E-E ± 0,5 dB).

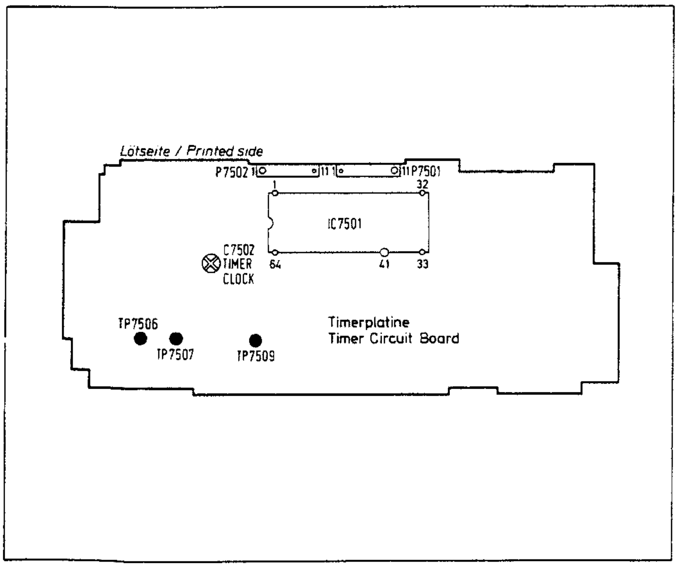
2.3.6 Einstellung der automatischen Tonspurumschaltung

Meßpunkte	Einsteller	Betriebsart	Eingang
	VR 4505	Eigenaufnahme	

Cassette	Meßgeräte	Spezifikation
VHS-Cassette		

1. Eine Aufnahme durchführen und diese wiedergeben.
2. Mit der Tonspur-Wahltaste auf „STEREO" schalten.
3. Den TRACKING-Regler auf maximale HiFi-Trackinganzeige einstellen (Raststellung).
4. Den Einsteller VR 4505 zuerst so einstellen. daß die Anzeige von STEREO auf NORMAL schaltet und anschließend zurückdrehen, bis die STEREO-Anzeige gerade aufleuchtet.

2.4 Timerteil



2.3.4 Audio Recording Current Adjustment

Test points	Adjuster	Mode	Input
TP 4507 (HOT) Shield case (GND) (Head Amp. pack)	VR 4503 (Audio section)	Rec. Play	

Tape	M. EQ.	Specification
VHS-Tape	Oscilloscope	210 ± 10 mVp-p

2.3.5 Audio Playback Level Adjustment (Normal mode)

Test points	Adjuster	Mode	Input
AUDIO OUT	VR 4001 (Normal)	Self recording	1 kHz, – 10 dB Audiosignal and Videosignal

Tape	M. EQ.	Specification
VHS-Tape	Millivoltmeter, Signal generator	E-E Level = – 8 ± 2 dB Playback-Level = E-E ± 0,5 dB

Note:
Before this adjustment "Adjustment of A/C Head" (page 16/17) must be completed.

1. Set the AUDIO REC LEVEL controls to center fix position.
2. Record a portion and play it back. (The microphone socket of the front panel has to be connected.)
3. Adjust VR 4001 (normal track) so that the level of the playback becomes E-E level ± 0,5 dB.

2.3.6 Audio Muting Adjustment

Test points	Adjuster	Mode	Input
	VR 4505	Self recording	

Tape	M. EQ.	Specification
VHS-Tape		

1. Play back the just recorded portion.
2. Set the AUDIO SELECT SW to the STEREO position.
3. Adjust the TRACKING VR so that the Audio Tracking level becomes maximum.
4. Preadjust VR 4505 until the HiFi indication on the front panel display turns the NORMAL indication. Then slowly adjust VR 4505 where the STEREO indication just turns ON.

2.4 Timer Section

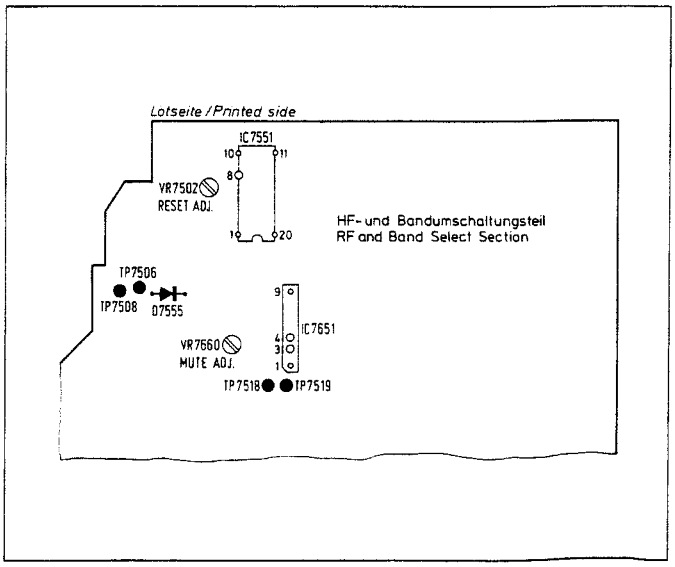


Fig. 17

2.4.1 Einstellung der Netzausfallüberwachung

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 7508 Hauptplatine	VR 7502		

Cassette	Meßgeräte	Spezifikation
	Oszilloskop, 2 Netzgeräte	

Hinweis:
Das Netzkabel nicht einstecken.

1. Ein Netzgerät auf 4,6 V± 0,05 V einstellen und ⊕ an IC 7551/8 anschließen (⊖ an Masse).
2. Ein zweites Netzgerät auf 45 V ± 1 V einstellen und ⊕ an die Anode von D 7555 anschließen (⊖ an Masse).
3. VR 7502 so einstellen, daß die Spannung am TP 7508 gerade von High- auf Low-Pegel springt.
4. Kontrollieren, ob bei 4,8 V ± 0,05 V (Netzgerät 1) ein High-Pegel erscheint.

2.4.2 Einstellung der Timer-Taktfrequenz

Meßpunkte	Einsteller	Betriebsart	Eingang
IC 7501 Pin 41	C 7502		

Cassette	Meßgeräte	Spezifikation
	Frequenzzähler, Netzgerät	3906,250 ± 0,008 µsec.

Hinweise:
Triggerbaren Frequenzzähler verwenden!
Das Netzkabel nicht einstecken.

1. Ein Netzgerät auf 5,8 V ± 0,1 V einstellen und ⊕ an den Stecker P 7502/1 anschließen (⊖ an Masse).
2. Eine Brücke vom Stecker P 7501/11 nach Masse schalten.
3. Den Frequenzzähler an IC 7501/41 anschließen.
4. Mit C 7502 auf 3906,25 ± 0,008 µsec. einstellen.
5. Bei korrekt eingestellter Timer-Taktfrequenz darf die angezeigte Uhrzeit 8 sec pro Monat von der realen Zeit abweichen.

2.4.3 Einstellung der Stummschaltung

Meßpunkte	Einsteller	Betriebsart	Eingang
IC 7651 Pin 4	VR 7660		

Cassette	Meßgeräte	Spezifikation
	Frequenzzähler, Netzgerät	15625 ± 50 Hz

1. Das Netzkabel nicht einstecken.
2. Ein Netzgerät auf 12 V ± 0,3 V einstellen und ⊕ an IC 7651/3 anschließen (⊖ an Masse).
3. Den Frequenzzähler über die Schaltung Fig. 18 an IC 7651/4 anschließen.
4. Mit VR 7660 auf 15625 Hz ± 50 Hz einstellen.

2.4.1 Power Failure Detective Voltage Adjustment

Test points	Adjuster	Mode	Input
TP 7508 Main C. B	VR 7502		

Tape	M. EQ.	Specification
	Oscilloscope, 2 Power Supplys	

Note:
Do not connect the AC plug.

1. Set the voltage of the DC Power Supply for 4.6 V± 0.05 V and supply it to IC 7551-8 ⊕ and GND ⊖.
2. Set the voltage of another DC Power Supply for 45 V ± 1 V and supply it to Anode of D 7555.
3. Adjust VR 7502 so that the DC Voltage is just turned high level into low level.
4. Confirm that the DC voltage becomes high level by supplying DC voltage for 4.8 V ± 0.05 V.

2.4.2 Timer Clock Adjustment

Test points	Adjuster	Mode	Input
IC 7501 Pin 41	C 7502		

Tape	M. EQ.	Specification
	Frequency Counter, DC Power Supply	3906.250 ± 0.008 µsec.

Notes:
Use a frequency counter which may be triggered!
Do not connect the AC Plug.

1. Set the voltage of the DC Power Supply for 5.8 V ± 0.1 V and supply it to P 7502-1 ⊕ an GND ⊖.
2. Connect a jumper wire between P 7501-11 and GND.
3. Connect the Frequency Counter to IC 7501-41.
4. Adjust C 7502 for 3906.25 ± 0.008 µsec.
5. With a correctly set pulse frequency the displayed time may deviate 8 sec from the real time.

2.4.3 Timer Muting Frequency Adjustment

Test points	Adjuster	Mode	Input
IC 7651 Pin 4	VR 7660		

Tape	M. EQ.	Specification
	Frequency Counter, DC Power Supply	15625 ± 50 Hz

1. Do not connect the AC power plug.
2. Set the voltage of the DC Power Supply for 12 V ± 0.3 V and supply it to IC 7651-(3) ⊕ and GND ⊖.
3. Connect the Frequency Counter through the adjustment circuit as Fig. 18.
4. Adjust VR 7660 so that the reading of the Frequency counter is 15625 Hz ± 50 Hz.

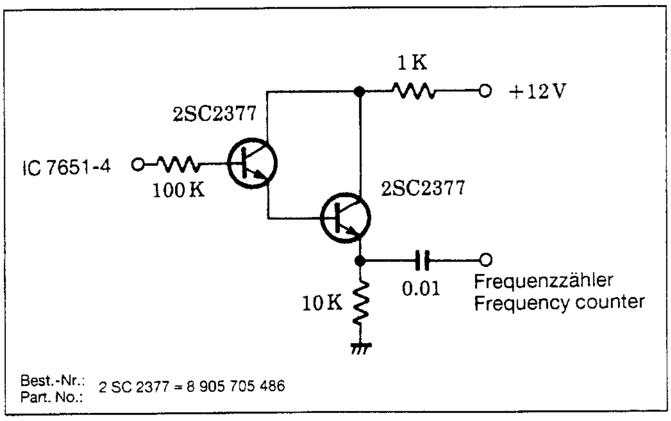


Fig. 18 Abgleichschaltung/Adjustment Circuit

2.5 TV Demodulatorteil

Meßgeräte

Für einen vollständigen Abgleich sind folgende Meßgeräte erforderlich:

1. Bild-ZF-Wobbler mit Markengeber .... 38,9 MHz
2. Meßsender .... 38,9 MHz ± 100 kHz
3. Sichtgerät
4. Oszilloskop
5. Digitalvoltmeter

Hinweis:
Um den TV-Demodulator abgleichen zu können, muß dieser wie folgt umgesetzt werden.

2.5 TV Demodulator Section

Test Equipments

To make adjustment completely, following equipments are required:

1. VIF Sweep Generator with the Trap Adjustor .... 38.9 MHz
2. CW Oscillator .... 38.9 MHz ± 100 kHz
3. Monitor Scope
4. Oscilloscope
5. Digital Voltmeter

Note:
To make this adjustment, please set the TV Demodulator Pack as shown below.

Den TV-Demodulator aus der Hauptplatine herauslöten und von der Leiterbahnseite wieder anlöten.
Bei der Montage darauf achten, daß die Masseanschlüsse (A) keine anderen Teile auf der Hauptplatine berühren.

First, remove the TV Demodulator Pack from the Main C. B. Then, reinstall the TV Demodulator Pack to the Main C. B. on foil side and finally solder the soldering portions of the TV Demodulator Pack. However, when reinstalling, be extremely careful so that the portions (A) of the TV Demodulator Pack do not touch the Main C. B.

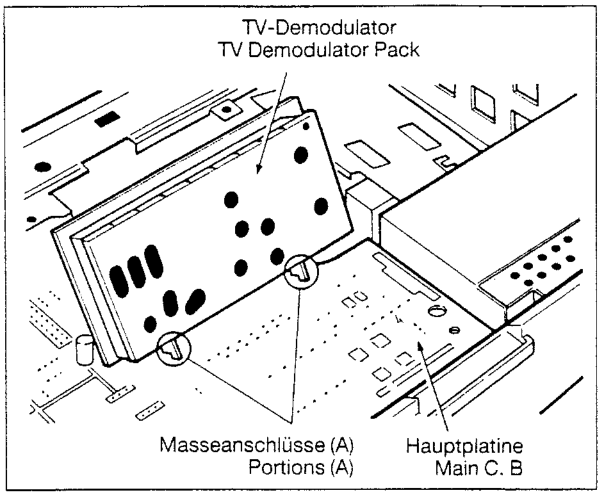

TV-Demodulator
TV Demodulator Pack
Masseanschlüsse (A)
Portions (A)
Hauptplatine
Main C. B

Fig. 19

2.5.1 Bild-ZF-Abgleich

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 707	T 703, T 710 Tuner-Auskoppelspule		Bild-ZF-Wobbler

Cassette	Meßgeräte	Spezifikation
	Bild-ZF-Wobbler, Sichtgerät	

1. Den Bereichsschalter auf Band III stellen und den Abstimmregler so einstellen, daß am BT-Anschluß des Tuners 15 V anliegen.
2. Die AFC ausschalten.
3. Den Tuneranschluß AGC nach Masse kurzschließen.
4. Einen Kondensator 1 µF/50 V von TP 703 nach Masse schalten.
5. Den Bild-ZF-Wobbler an den Testpunkt des Tuners anschließen und das Sichtgerät mit dem Meßpunkt TP 707 verbinden (Fig. 20).

2.5.1 Vif Sweep Adjustment

Test points	Adjuster	Mode	Input
TP 707	T 703, T 710 Tuner Converter Coil		VIF Sweep

Tape	M. EQ.	Specification
	VIF Sweep, Monitor Scope	

1. Set the band switch to band III and the tun[illegible]ontrol so that the voltage at BT terminal of the tuner becomes [illegible]
2. Set the AFC to OFF.
3. Connect a jumper wire between AGC Te[illegible] the Tuner and GND.
4. Connect a capacitor (50 V/1 µF) between [illegible]3 and GND.
5. Connect the VIF Sweep to the Tuner Test Point and connect the Monitor Scope to TP 707 as shown below.

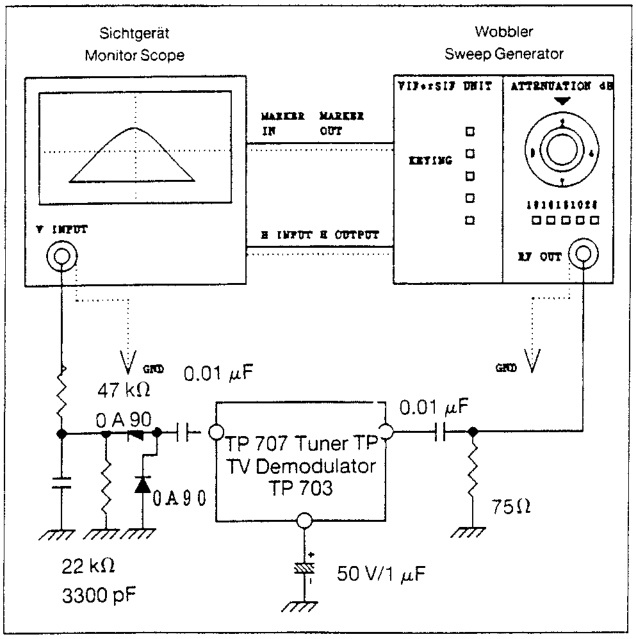

Sichtgerät
Monitor Scope
Wobbler
Sweep Generator
MARKER IN
MARKER OUT
H INPUT H OUTPUT
V INPUT
VIF•SIF UNIT
KEYING
ATTENUATION dB
RF OUT
GND
GND
0.01 µF
47 kΩ
0 A 90
0.01 µF
TP 707 Tuner TP
TV Demodulator
TP 703
0 A 9 0
75Ω
22 kΩ
3300 pF
50 V/1 µF

Fig. 20

6. Die Ausgangsspannung des Bild-ZF-Wobblers so einstellen, daß die Wobbelkurve auf dem Sichtgerät 0,3 V_{ss} erreicht.
7. Mit dem Abschwächer am Wobbler um 20 dB verringern.
8. Das Abgleichpoti entsprechend Fig. 21 anschließen.
9. Das Abgleichpoti so einstellen, daß die Wobbelkurve auf dem Sichtgerät 0,3 V_{ss} erreicht.
10. Mit T 703 die VCO-Schwingung in die Kurvenmitte stellen.

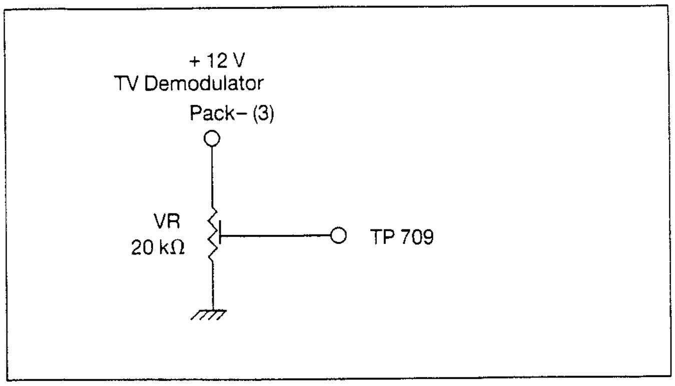


Fig. 21 Abgleichpoti/Adjustment Tig.

11. Das Abgleichpoti nachstellen, um wieder eine Wobbelkurve von 0,3 V_{ss} zu erreichen.
12. Die Tuner-Auskoppelspule und T 710 zunächst auf maximale Kurvenform einstellen und anschließend eine Duchlaßkurve wie in Fig. 23 gezeigt einstellen.

6. Adjust the output of the VIF Sweep Generator so that the sweep wave becomes 0.3 $V_{p\text{-}p}$ on the Monitor Scope.
7. Release the attenuator of the VIF Sweep Generator for 20 dB.
8. Connect the Jig to both points TP 709 and TV Demodulator Pack- (3).
9. Adjust the VR of the Adjustment Jig so that the sweep wave becomes 0.3 $V_{p\text{-}p}$ on the Monitor Scope.
10. Adjust T 703 so that the VCO beat is placed to center of waveform as shown below.

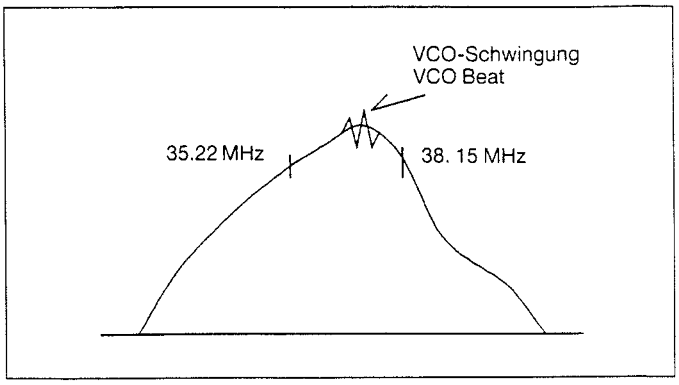


Fig. 22

11. Readjust the VR of the Adjustment Jig. so that the sweep wave becomes 0.3 $V_{p\text{-}p}$ on the Monitor Scope.
12. Preadjust the T 710 and Tuner Converter Coil so that the sweep output waveform becomes maximum and then adjust the T 710 and Tuner Converter Coil so that the waveform becomes as follows.

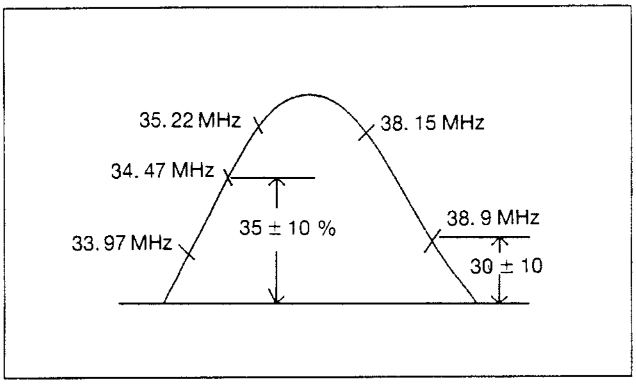


Fig. 23

2.5.2 AFC Abgleich

Meßpunkte	Einsteller	Betriebsart	Eingang
AFC-Anschluß des Tuners	T 704		Meßsender

Cassette	Meßgeräte	Spezifikation
	Meßsender, Digitalvoltmeter	„A" ± 0,3 V

1. Den Bereichsschalter auf Band III stellen und den Abstimmregler so einstellen, daß am BT-Anschluß des Tuners 15 V ± 1 V anliegen.
2. Den Meßsender auf 38,9 MHz einstellen und über eine 10 kΩ Wiederstand an den Tunermeßpunkt anschließen.
3. Das Digitalvoltmeter an den AFC-Anschluß des Tuners anschließen und den Spannungswert „A" messen (AFC aus).
4. Die AFC einschalten und mit T 704 auf „A" ± 0,3 V einstellen.
5. Die Frequenz 38,9 MHz um ± 100 kHz verstellen und prüfen, ob sich die AFC-Spannung um mehr als ± 2 V ändert.

2.5.2 AFC Adjustment

Test points	Adjuster	Mode	Input
AFC Terminal of the Tuner	T 704		CW Signal

Tape	M. EQ.	Specification
	CW Oscillator, D. V. M.	"A" ± 0.3 V

1. Set the band switch to band III and the tuning control so that the voltage at BT terminal of the tuner becomes 15 V ± 1 V.
2. Set the CW oscillator output to 38.9 MHz 1 $V_{p\text{-}p}$ and connect the CW oscillator output to the Tuner Test Point through a 10 kΩ resistor.
3. Connect the D. V. M. to the AFC terminal of the tuner and read the voltage "A", when the AFC is off.
4. Set the AFC to ON and adjust T 704 for "A" ± 0,3 V.
5. Change the frequency of the CW oscillator by ± 100 kHz, centered at 38.9 MHz and confirm that the difference of the AFC voltage is more than ± 2 V.

2.6 Dekoderteil

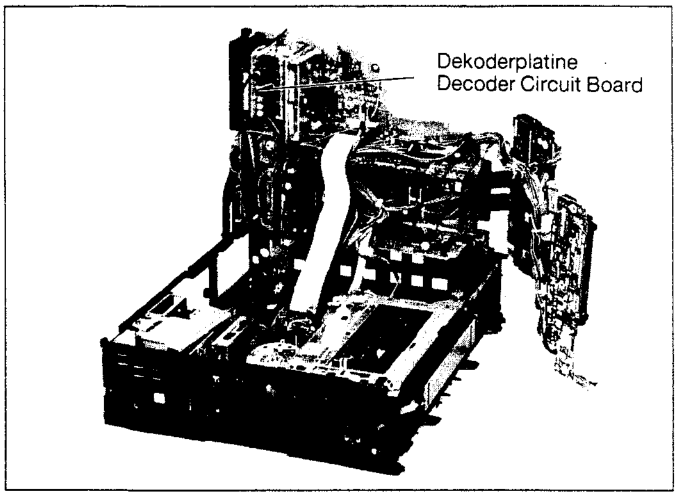

Dekoderplatine
Decoder Circuit Board

Fig. 24

Erforderliche Meßgeräte

1. Digitalvoltmeter (DVM)
2. Oszilloskop
3. Frequenzzähler
4. Klirranalysator
5. Millivoltmeter
6. Ton-Meßsender

Einstellung des Ton-Meßsenders:

Zweitonbetrieb (MPX)

Ausgang (Output)	75 ± 5 dB (50 Ω, offen)
Video Modulation	87,5 %
P/S Ratio	P-S 1: 13 dB P-S 2: 20 dB
Audio Modulation	S1: 400 Hz, 100 % (± 30 kHz) S2: 1 kHz, 100 % (± 30 kHz)
Betriebsart (Mode)	Dual, M 1 oder M 2

Stereobetrieb (STEREO)

Ausgang (Output)	75 ± 5 dB (50 Ω, offen)
Video Modulation	87,5 %
P/S Ratio	P-S 1: 13 dB P-S 2: 20 dB
Audio Modulation	S1: 400 Hz, 100 % (± 30 kHz) S2: 1 kHz, 100 % (± 30 kHz)
Betriebsart (Mode)	Dual, L oder R

Monobetrieb (SINGLE)

Ausgang (Output)	75 ± 5 dB (50 Ω, offen)
Video Modulation	87,5 %
Audio Modulation	S1, S2: 1 kHz 100 % → 0 %
Betriebsart (Mode)	SINGLE, L/R, M 1/M 2

2.6.1 Einstellung der Ton Selektionsfilter

Meßpunkte	Einsteller	Betriebsart	Eingang
Dekoderpl. Stift 10/13	T 711 T 752		Ton-Meßsender
Cassette	Meßgeräte	Spezifikation	
	Oszilloskop		

1. Ein Farbtestbild mit Zweitonsignal (MPX) empfangen (Ton-Meßsender).
2. Das Oszilloskop an die Dekoderplatine Stift 10 anschließen.
3. Das Filter T 711 (TV-Demodulator) auf maximale Amplitude abgleichen (> 400 mV_{ss}).
4. Das Oszilloskop an die Dekoderplatine Stift 13 anschließen.
5. Das Filter T 752 (TV-Demodulator) auf maximale Amplitude abgleichen (> 400 mV_{ss}).

2.6 Decoder Section

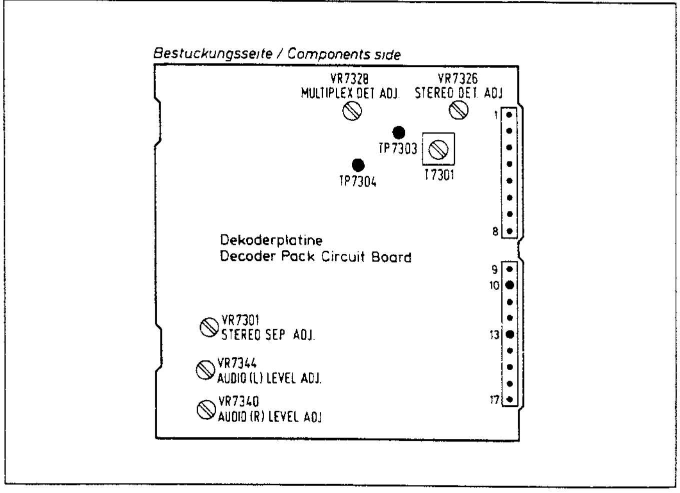

Bestuckungsseite / Components side
VR7328
MULTIPLEX DET ADJ
VR7326
STEREO DET ADJ
TP7303
TP7304
T7301
1
8
9
10
13
17
Dekoderplatine
Decoder Pack Circuit Board
VR7301
STEREO SEP ADJ
VR7344
AUDIO (L) LEVEL ADJ
VR7340
AUDIO (R) LEVEL ADJ

Fig. 25

Required equipment:

1. Digital Voltmeter (D.V.M.)
2. Oscilloscope
3. Frequency Counter
4. Distortion Meter
5. Milli Voltmeter
6. Multi Voice Modulator (M.V.M.)

Setting of Multi Voice Modulator:

(MPX)

Output	75 ± 5 dB (50 Ω, open)
Video Modulation	87,5 %
P/S Ratio	P-S 1: 13 dB P-S 2: 20 dB
Audio Modulation	S1: 400 Hz, 100 % (± 30 kHz) S2: 1 kHz, 100 % (± 30 kHz)
Mode	Dual, M 1 or M 2

(STEREO)

Output	75 ± 5 dB (50 Ω, open)
Video Modulation	87,5 %
P/S Ratio	P-S 1: 13 dB P-S 2: 20 dB
Audio Modulation	S1: 400 Hz, 100 % (± 30 kHz) S2: 1 kHz, 100 % (± 30 kHz)
Mode	Dual, L or R

(SINGLE) (Manual Setting)

Output	75 ± 5 dB (50 Ω, open)
Video Modulation	87,5 %
Audio Modulation	S1, S2: 1 kHz 100 % → 0 %
Mode	SINGLE, L/R, M 1/M 2

2.6.1 FM Detection Transformer Adjustment

Test points	Adjuster	Mode	Input
Decoder Pack C.B. Pin 10/13	T 711 T 752		M.V.M.
Tape	M. EQ.	Specification	
	Oscilloscope		

1. Connect the output of the Multi Voice Modulator to RF Input (MPX-signal).
2. Connect the oscilloscope to pin 10 of Decoder Pack C. B.
3. Adjust T 711 (TV-Demodulator) so that the output level on the oscilloscope becomes maximum (> 400 mV_{ss}).
4. Connect the oscilloscope to pin 13 of Decoder Pack C. B.
5. Adjust T 752 (TV-Demodulator) so that the output level on the oscilloscope becomes maximum (> 400 mV_{ss}).

2.6.2 Einstellung der Stereo- und Zweitonerkennung

Meßpunkte	Einsteller	Betriebsart	Eingang
TP 7303 TP 7304	VR 7326 VR 7328 T 7301		Ton-Meßsender

Cassette	Meßgeräte	Spezifikation
	Oszilloskop	Kurvenform auf Maximum

1. Ein Farbtestbild mit Stereoton empfangen (Ton-Meßsender).
2. Das Oszilloskop an TP 7303 anschließen.
3. Mit VR 7326 und T 7301 wechselseitig auf maximale Amplitude des 117,5 Hz Signales abgleichen (die Stereoanzeige muß leuchten).
4. Nun das Oszilloskop an TP 7304 anschließen und ein Zweitonsignal (MPX) empfangen.
5. Mit VR 7328 das 274,1 Hz Signal auf maximale Amplitude abgleichen (die 2-CH-Anzeige muß leuchten).

2.6.3 Einstellung der Stereotrennung

Meßpunkte	Einsteller	Betriebsart	Eingang
Dekoderpl. Stift 10	VR 7301		Ton-Meßsender

Cassette	Meßgeräte	Spezifikation
	Klirranalysator	

1. Ein Farbtestbild mit Stereoton empfangen (Ton-Meßsender).
2. Den Klirranalysator an die Dekoderplatine Stift 10 anschließen.
3. Mit VR 7301 auf Minimum abgleichen.

2.6.4 Einstellung der Tonpegel (Stereo)

Meßpunkte	Einsteller	Betriebsart	Eingang
Dekoderpl. Stift 10/13	VR 7344 VR 7340		Ton-Meßsender

Cassette	Meßgeräte	Spezifikation
	Millivoltmeter	100 ± 5 mV_{eff}

1. Ein Farbtestbild mit Stereoton empfangen (Ton-Meßsender).
2. Das Millivoltmeter an die Dekoderplatine Stift 10 anschließen.
3. Mit R 7344 auf 100 mV_{eff} ± 5 mV_{eff} einstellen.
4. Das Millivoltmeter an die Dekoderplatine Stift 13 anschließen.
5. Mit R 7340 auf 100 mV_{eff} ± 5 mV_{eff} einstellen.

2.6.5 Einstellung des Tonpegels (Hauptkanal)

Meßpunkte	Einsteller	Betriebsart	Eingang
TV-Demodulatorplatine Stift 4	VR 751		Ton-Meßsender

Cassette	Meßgeräte	Spezifikation
	Millivoltmeter	135 ± 5 mV_{eff}

1. Ein Farbtestbild mit Zweiton empfangen (Ton-Meßsender).
2. Das Millivoltmeter an dem Stift 4 der TV-Demodulatorplatine anschließen.
3. Mit R 751 (TV-Demodulator) einen Pegel von 135 mV_{eff} ± 5 mV_{eff} einstellen.

2.6.2 Sound Multiplex Detection Adjustment

Test points	Adjuster	Mode	Input
TP 7303 TP 7304	VR 7326 VR 7328 T 7301		M.V.M.

Tape	M. EQ.	Specification
	Oscilloscope	Waveform is maximized

1. Connect the output of the Multi Voice Modulator to RF Input (Stereo signal).
2. Connect the Oscilloscope to TP 7303.
3. Adjust VR 7326 and T 7301 mutually so that the waveform (117.5 Hz) is maximized and then confirm that the STEREO LED on the Deck just lights up.
4. Connect the Oscilloscope to TP 7304 and set the mode switch of the M.V.M to Multiplex mode.
5. Adjust VR 7328 so that the waveform (274.1 Hz) ist maximized and then confirm that the Multiplex LED (2 CH) on the Deck just lights up.

2.6.3 Stereo Separation Adjustment

Test points	Adjuster	Mode	Input
Decoder Pack C.B Pin 10	VR 7301		M.V.M.

Tape	M. EQ.	Specification
	Distortion Meter	

1. Connect the output of the Multi Voice Modulator to RF Input (Stereo signal)
2. Connect the Distortion Meter to pin 10 of Decoder Pack C. B.
3. Adjust VR 7301 so that the indication of the Distortion Meter becomes minimum.

2.6.4 Audio Output Level Adjustment

Test points	Adjuster	Mode	Input
Dekoder Pack C.B Pin 10/13	VR 7344 VR 7340		M.V.M.

Tape	M. EQ.	Specification
	Milli Voltmeter	100 ± 5 mV_{rms}

1. Connect the output of the Multi Voice Modulator to RF Input (Stereo signal).
2. Connect the Milli Voltmeter to pin 10 of Decoder Pack C. B.
3. Adjust VR 7344 so that indication of the Milli Voltmeter becomes 100 ± 5 mV_{rms}.
4. Connect the Milli Voltmeter pin 13 of Decoder Pack C. B.
5. Adjust VR 7340 so that indication of the Milli Voltmeter becomes 100 ± 5 mV_{rms}.

2.6.5 Main Audio Output Level Adjustment

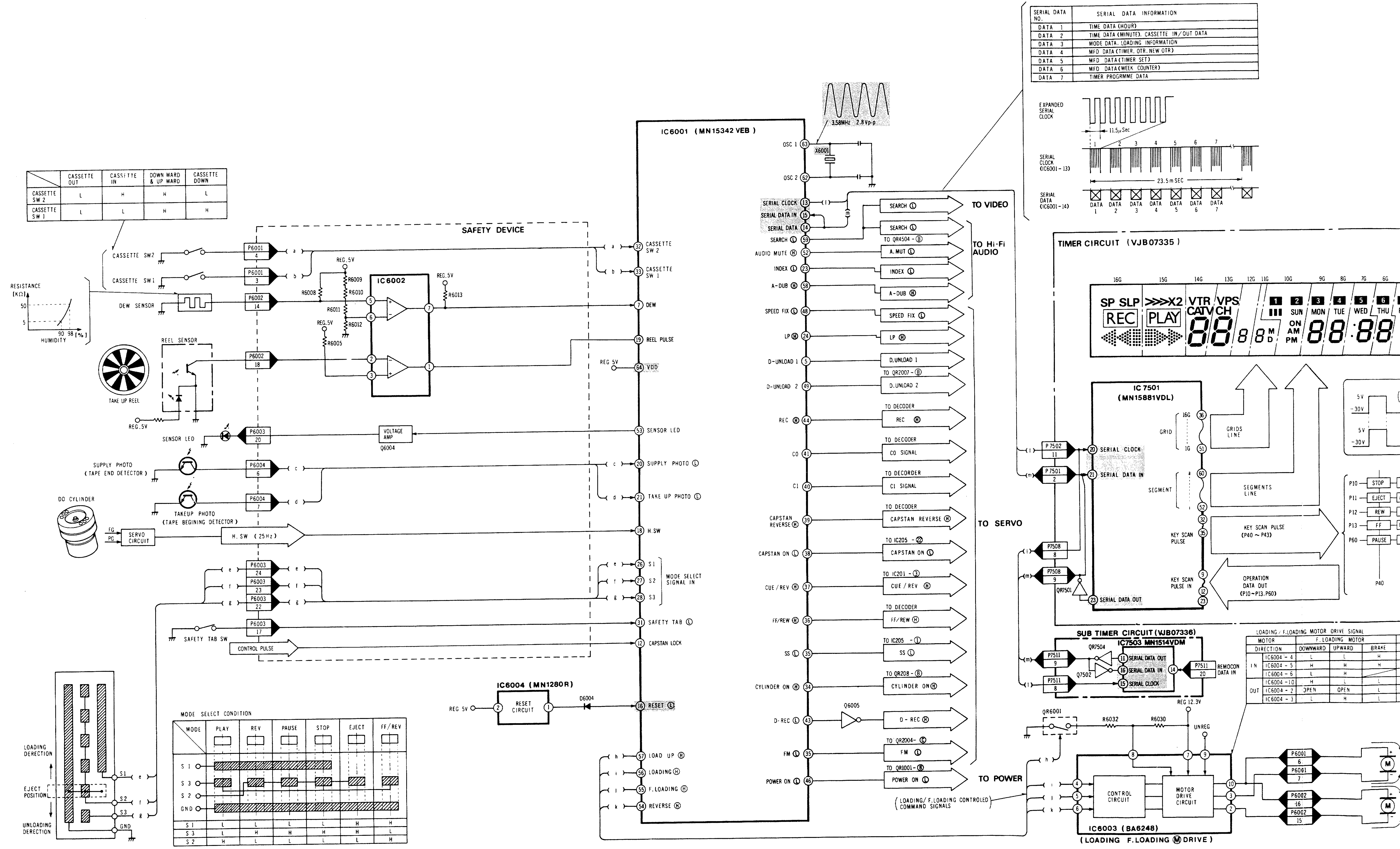
Test points	Adjuster	Mode	Input
TV-Demodulator Pack-4	VR 751		M.V.M.

Tape	M. EQ.	Specification
	Milli Voltmeter	135 ± 5 mV_{rms}

1. Connect the output of the Multi Voice Modulator to RF Input (DUAL M 1).
2. Connect the Milli Voltmeter to pin 4 of the Demodulator Pack.
3. Adjust VR 751 (TV Demodulator) so that the waveform becomes 135 ± 5 mV_{rms}.

Blockschaltbild Systemsteuerung
System Control Block Diagram

Blocksch
System C


IC6001 (MN15342 VEB)
SAFETY DEVICE
IC6002
IC6004 (MN1280R)
RESET CIRCUIT
REG 5V
CASSETTE SW2
CASSETTE SW1
DEW SENSOR
RESISTANCE [kΩ]
HUMIDITY
REEL SENSOR
TAKE UP REEL
SENSOR LED
VOLTAGE AMP
Q6004
SUPPLY PHOTO (TAPE END DETECTOR)
TAKEUP PHOTO (TAPE BEGINING DETECTOR)
DD CYLINDER
SERVO CIRCUIT
H. SW (25Hz)
SAFETY TAB SW
CONTROL PULSE
LOADING DERECTION
EJECT POSITION
UNLOADING DERECTION
3.58MHz 2.8Vp-p
X6001
OSC 1
OSC 2
SERIAL CLOCK
SERIAL DATA IN
SERIAL DATA
CASSETTE SW 2
CASSETTE SW 1
DEW
REEL PULSE
VDD
SENSOR LED
SUPPLY PHOTO Ⓛ
TAKE UP PHOTO Ⓛ
H.SW
S1
S2
S3
MODE SELECT SIGNAL IN
SAFETY TAB Ⓛ
CAPSTAN LOCK
RESET Ⓛ
LOAD UP Ⓗ
LOADING Ⓗ
F.LOADING Ⓗ
REVERSE Ⓗ
SEARCH Ⓛ
AUDIO MUTE Ⓗ
INDEX Ⓛ
A-DUB Ⓗ
SPEED FIX Ⓛ
LP Ⓗ
D-UNLOAD 1
D-UNLOAD 2
REC Ⓗ
CO
C1
CAPSTAN REVERSE Ⓗ
CAPSTAN ON Ⓛ
CUE/REV Ⓗ
FF/REW Ⓗ
SS Ⓛ
CYLINDER ON Ⓗ
D-REC Ⓗ
FM Ⓛ
POWER ON Ⓛ
TO QR4504 - Ⓑ
A.MUT Ⓛ
TO QR2007 - Ⓑ
TO DECODER
CO SIGNAL
C1 SIGNAL
TO IC205 - ㉒
TO IC201 - ③
TO IC205 - ①
TO QR208 - Ⓑ
Q6005
TO QR2004 - Ⓒ
TO QR1001 - Ⓑ
TO VIDEO
TO Hi-Fi AUDIO
TO SERVO
TO POWER
(LOADING/F.LOADING CONTROLED COMMAND SIGNALS)
EXPANDED SERIAL CLOCK
11.5μSec
SERIAL CLOCK (IC6001-13)
23.5mSEC
SERIAL DATA (IC6001-14)
TIMER CIRCUIT (VJB07335)
SP SLP
>>>X2
VTR VPS
CATV CH
REC
PLAY
SUN MON TUE WED THU
ON AM PM
IC7501 (MN15881VDL)
GRID
GRIDS LINE
SEGMENT
SEGMENTS LINE
KEY SCAN PULSE
KEY SCAN PULSE (P40 ~ P43)
KEY SCAN PULSE IN
OPERATION DATA OUT (P10~P13.P60)
SERIAL DATA OUT
QR7501
P10 STOP
P11 EJECT
P12 REW
P13 FF
P60 PAUSE
P40
SUB TIMER CIRCUIT (VJB07336)
IC7503 MN1514VDM
QR7504
Q7502
REMOCON DATA IN
REG 12.3V
QR6001
R6032
R6030
UNREG
CONTROL CIRCUIT
MOTOR DRIVE CIRCUIT
IC6003 (BA6248)
(LOADING F.LOADING Ⓜ DRIVE)

SERIAL DATA NO.	SERIAL DATA INFORMATION
DATA 1	TIME DATA (HOUR)
DATA 2	TIME DATA (MINUTE), CASSETTE IN/OUT DATA
DATA 3	MODE DATA, LOADING INFORMATION
DATA 4	MFD DATA (TIMER, OTR, NEW OTR)
DATA 5	MFD DATA (TIMER SET)
DATA 6	MFD DATA (WEEK COUNTER)
DATA 7	TIMER PROGRMME DATA

	CASSETTE OUT	CASSETTE IN	DOWN WARD & UP WARD	CASSETTE DOWN
CASSETTE SW 2	L	H	H	L
CASSETTE SW 1	L	L	H	H

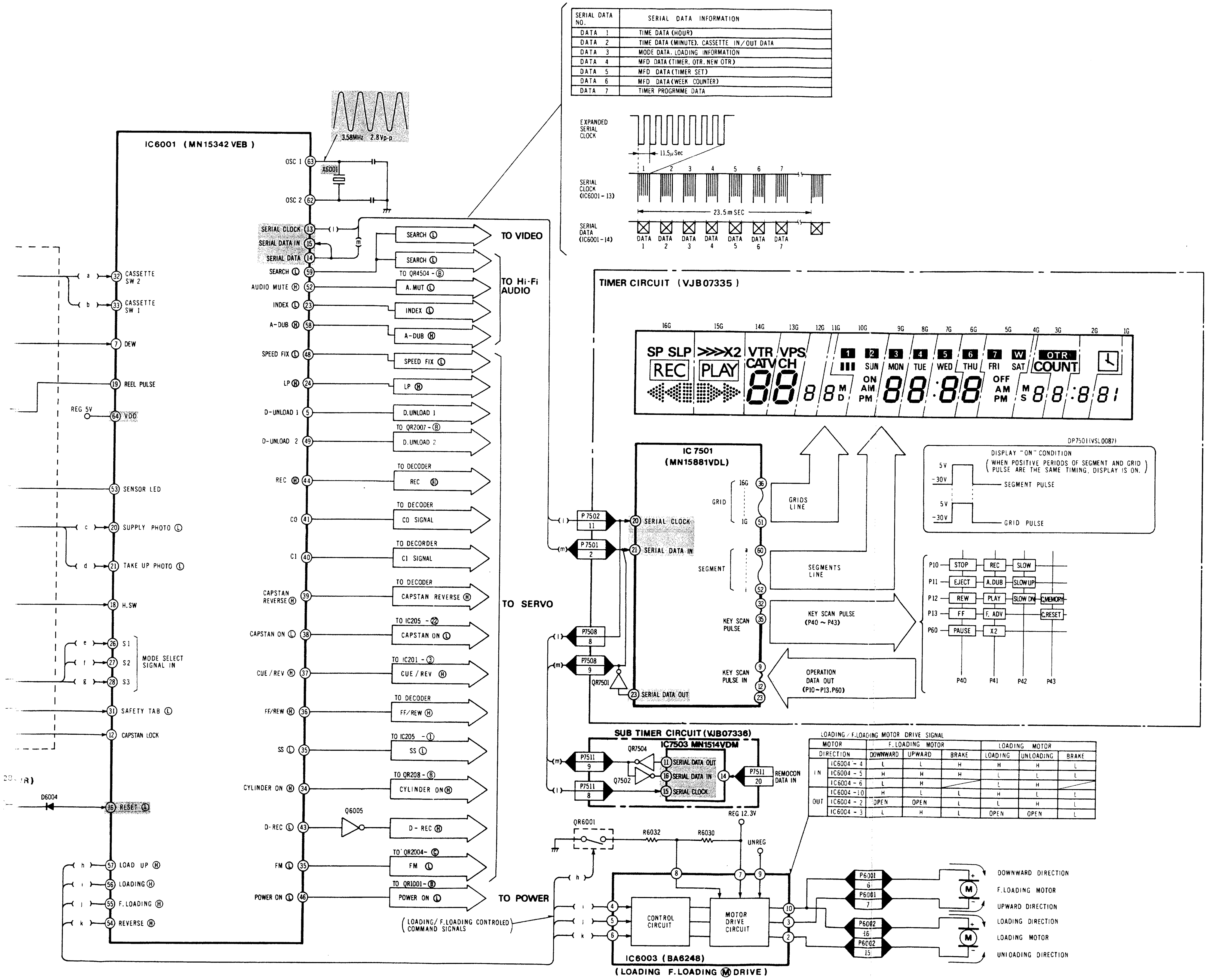
MODE SELECT CONDITION

MODE	PLAY	REV	PAUSE	STOP	EJECT	FF/REV
S 1	L	L	L	L	H	H
S 3	L	H	H	H	H	L
S 2	H	L	L	L	L	H

LOADING / F.LOADING MOTOR DRIVE SIGNAL

MOTOR		F.LOADING MOTOR		
DIRECTION		DOWNWARD	UPWARD	BRAKE
IN	IC6004 - 4	L	L	H
	IC6004 - 5	H	H	H
	IC6004 - 6	L	H	
OUT	IC6004 - 10	H	L	L
	IC6004 - 2	OPEN	OPEN	L
	IC6004 - 3	L	H	L

Blockschaltbild Systemsteuerung
System Control Block Diagram

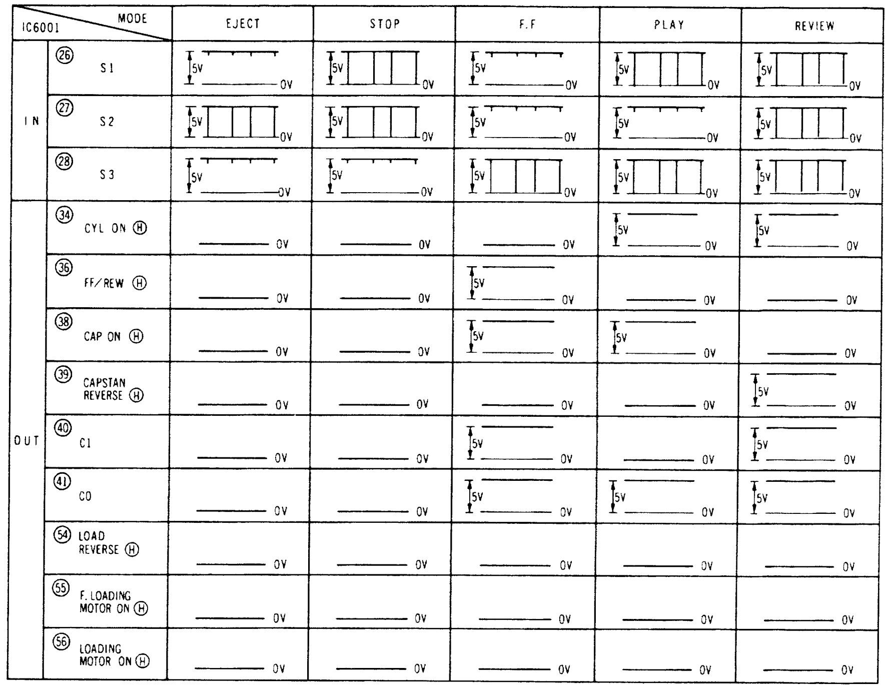


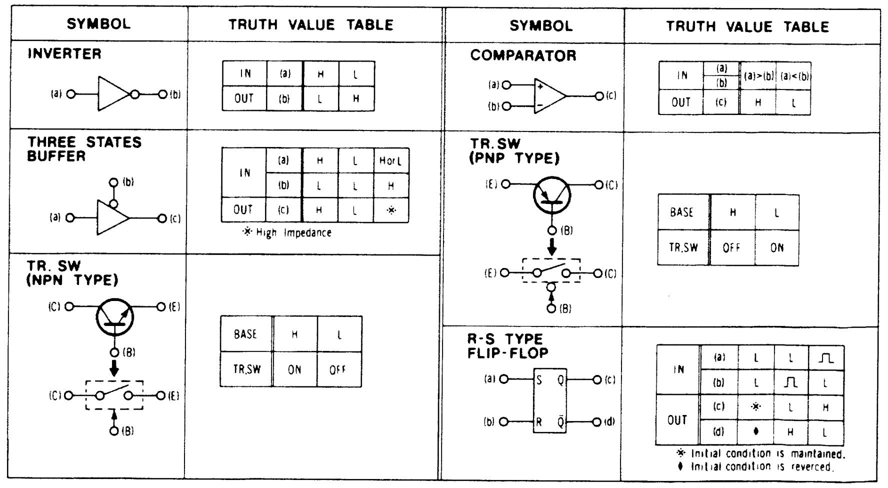
IC6001 (MN15342 VEB)
3.58MHz 2.8Vp-p
X6001
OSC 1 63
OSC 2 62
SERIAL CLOCK 13
SERIAL DATA IN 15
SERIAL DATA 14
SEARCH Ⓛ 59
AUDIO MUTE Ⓗ 52
INDEX Ⓛ 23
A-DUB Ⓗ 58
SPEED FIX Ⓛ 48
LP Ⓗ 24
D-UNLOAD 1 5
D-UNLOAD 2 49
REC Ⓗ 44
CO 41
CI 40
CAPSTAN REVERSE Ⓗ 39
CAPSTAN ON Ⓛ 38
CUE/REV Ⓗ 37
FF/REW Ⓗ 36
SS Ⓛ 35
CYLINDER ON Ⓗ 34
D-REC Ⓛ 43
FM Ⓛ 35
POWER ON Ⓛ 46
Q6005
SEARCH Ⓛ
TO VIDEO
TO QR4504-Ⓑ
A.MUT Ⓛ
INDEX Ⓛ
A-DUB Ⓗ
TO Hi-Fi AUDIO
SPEED FIX Ⓛ
LP Ⓗ
D.UNLOAD 1
TO QR2007-Ⓑ
D.UNLOAD 2
TO DECODER
REC Ⓗ
CO SIGNAL
TO DECORDER
CI SIGNAL
CAPSTAN REVERSE Ⓗ
TO IC205 - ㉒
CAPSTAN ON Ⓛ
TO IC201 - ③
CUE/REV Ⓗ
FF/REW Ⓗ
TO IC205 - ①
SS Ⓛ
TO QR208 - Ⓑ
CYLINDER ON Ⓗ
D-REC Ⓗ
TO QR2004- Ⓒ
FM Ⓛ
TO QR1001- Ⓑ
POWER ON Ⓛ
TO SERVO
TO POWER
(LOADING/F.LOADING CONTROLED COMMAND SIGNALS)
a 32 CASSETTE SW 2
b 33 CASSETTE SW 1
7 DEW
19 REEL PULSE
REG 5V 64 VDD
53 SENSOR LED
c 20 SUPPLY PHOTO Ⓛ
d 21 TAKE UP PHOTO Ⓛ
18 H.SW
e 26 S1
f 27 S2
g 28 S3
MODE SELECT SIGNAL IN
31 SAFETY TAB Ⓛ
12 CAPSTAN LOCK
D6004
16 RESET Ⓛ
h 57 LOAD UP Ⓗ
i 56 LOADING Ⓗ
j 55 F.LOADING Ⓗ
k 54 REVERSE Ⓗ
EXPANDED SERIAL CLOCK
11.5μSec
SERIAL CLOCK (IC6001-13)
23.5mSEC
SERIAL DATA (IC6001-14)
DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7
TIMER CIRCUIT (VJB07335)
SP SLP >>>X2 VTR VPS CATV CH REC PLAY
SUN MON TUE WED THU FRI SAT OTR COUNT
ON AM PM OFF
DP7501 (VSL0087)
IC 7501 (MN15881VDL)
P7502 11
P7501 2
20 SERIAL CLOCK
21 SERIAL DATA IN
GRID 16G 1G
GRIDS LINE
SEGMENT
SEGMENTS LINE
KEY SCAN PULSE
KEY SCAN PULSE (P40 ~ P43)
KEY SCAN PULSE IN
OPERATION DATA OUT (P10~P13.P60)
P7508 8
P7508 9
QR7501
23 SERIAL DATA OUT
DISPLAY "ON" CONDITION
(WHEN POSITIVE PERIODS OF SEGMENT AND GRID PULSE ARE THE SAME TIMING, DISPLAY IS ON.)
5V -30V SEGMENT PULSE
5V -30V GRID PULSE
P10 STOP REC SLOW
P11 EJECT A.DUB SLOW UP
P12 REW PLAY SLOW DN MEMORY
P13 FF F.ADV C.RESET
P60 PAUSE X2
P40 P41 P42 P43
SUB TIMER CIRCUIT (VJB07336)
IC7503 MN1514VDM
QR7504
Q7502
11 SERIAL DATA OUT
16 SERIAL DATA IN
15 SERIAL CLOCK
14
P7511 9
P7511 8
P7511 20
REMOCON DATA IN
REG 12.3V
QR6001
R6032
R6030
UNREG
IC6003 (BA6248)
CONTROL CIRCUIT
MOTOR DRIVE CIRCUIT
(LOADING F.LOADING Ⓜ DRIVE)
P6001 6
P6001 7
P6002 16
P6002 15
DOWNWARD DIRECTION
F.LOADING MOTOR
UPWARD DIRECTION
LOADING DIRECTION
LOADING MOTOR
UNLOADING DIRECTION

SERIAL DATA NO.	SERIAL DATA INFORMATION
DATA 1	TIME DATA (HOUR)
DATA 2	TIME DATA (MINUTE), CASSETTE IN/OUT DATA
DATA 3	MODE DATA, LOADING INFORMATION
DATA 4	MFD DATA (TIMER, OTR, NEW OTR)
DATA 5	MFD DATA (TIMER SET)
DATA 6	MFD DATA (WEEK COUNTER)
DATA 7	TIMER PROGRMME DATA

LOADING / F.LOADING MOTOR DRIVE SIGNAL

MOTOR		F.LOADING MOTOR			LOADING MOTOR		
DIRECTION		DOWNWARD	UPWARD	BRAKE	LOADING	UNLOADING	BRAKE
IN	IC6004 - 4	L	L	H	H	H	L
	IC6004 - 5	H	H	H	L	L	L
	IC6004 - 6	L	H		L	H	
OUT	IC6004 - 10	H	L	L	H	L	L
	IC6004 - 2	OPEN	OPEN	L	L	H	L
	IC6004 - 3	L	H	L	OPEN	OPEN	L





SYMBOL
TRUTH VALUE TABLE
INVERTER
THREE STATES BUFFER
TR. SW (NPN TYPE)
COMPARATOR
TR. SW (PNP TYPE)
R-S TYPE FLIP-FLOP
(a) (b) (c) (d)
(E) (C) (B)
S Q R Q̄

INVERTER

IN	(a)	H	L
OUT	(b)	L	H

THREE STATES BUFFER

IN	(a)	H	L	H or L
	(b)	L	L	H
OUT	(c)	H	L	※

※ High Impedance

TR. SW (NPN TYPE)

BASE	H	L
TR.SW	ON	OFF

COMPARATOR

IN	(a) (b)	(a)>(b)	(a)<(b)
OUT	(c)	H	L

TR. SW (PNP TYPE)

BASE	H	L
TR.SW	OFF	ON

R-S TYPE FLIP-FLOP

IN	(a)	L	L	⎍
	(b)	L	⎍	L
OUT	(c)	※	L	H
	(d)	♦	H	L

※ Initial condition is maintained.
♦ Initial condition is reverced.

Arbeitet der Recorder in einer Betriebsart nicht einwandfrei, die gekennzeichneten Teile kontrollieren.

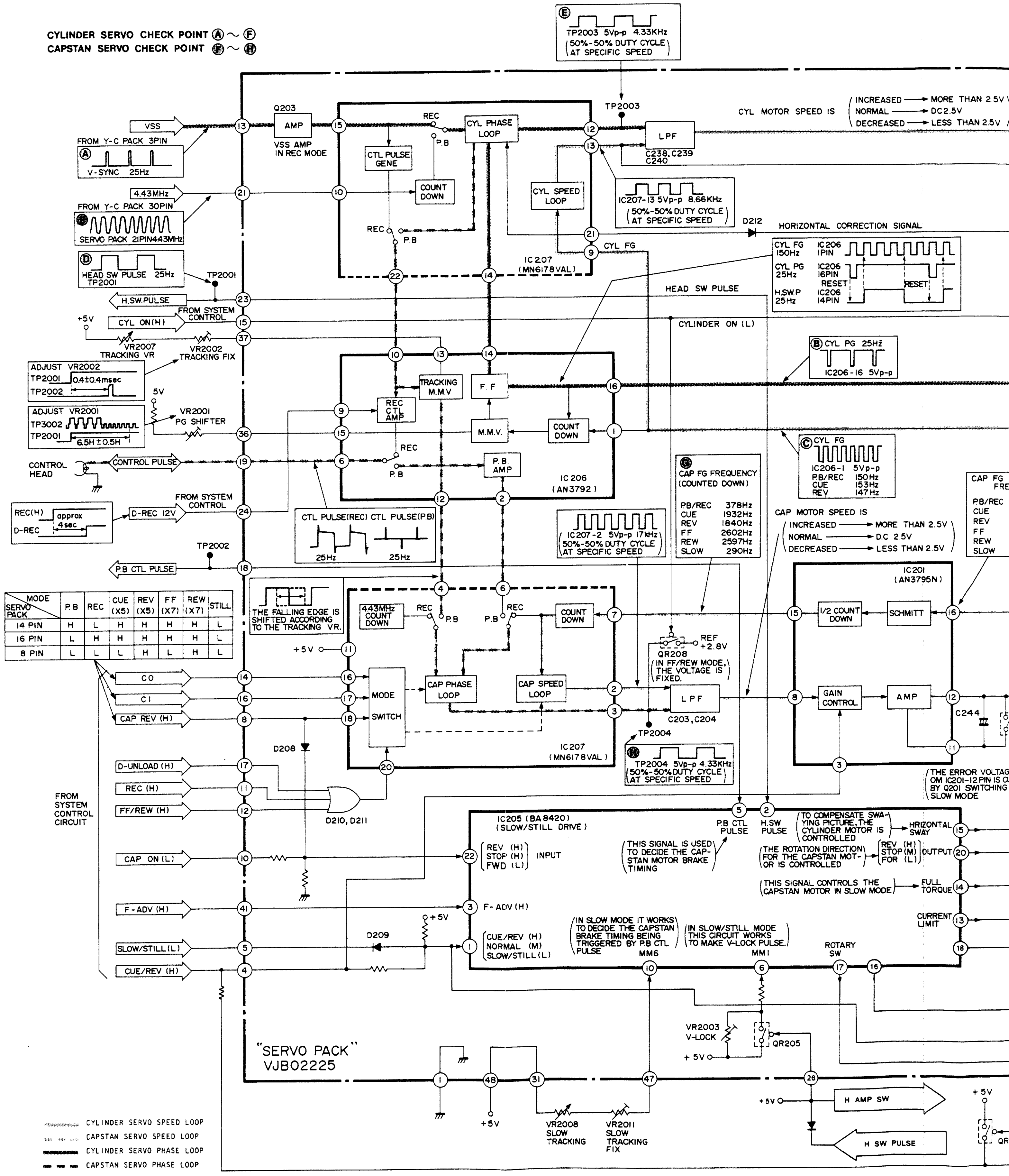
If the video tape recorder does not work in any modes, check the parts marked in the illustration.

Ergänzende Hinweise
Supplementary Explanations
Explications supplémentaires

Erläuterung der in den Schaltbildern verwendeten englischen Bezeichnungen und Abkürzungen.
Explanation of the English descriptions and abbreviations used in schematic diagrams.
Explication des dénominations et abréviations anglaises utilisées dans les schémas électriques.

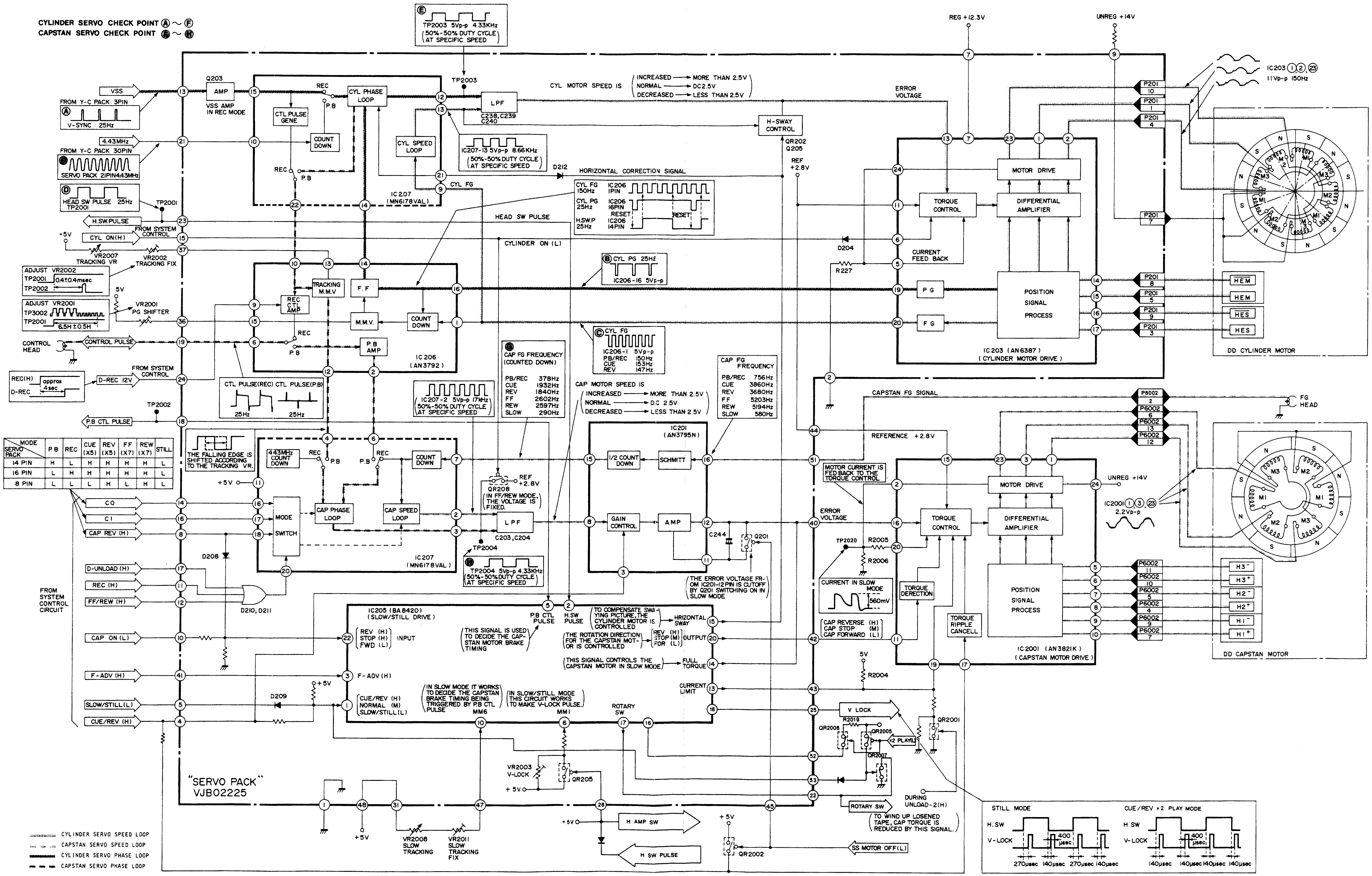
AC 38 V	38 V Wechselspannung	Courant alternatif 38 V
ACC (Automatic Color Control)	Autom. Farbregelung	Réglage Couleur automatique
ACK (Automatic Color Killer)	Autom. Farbabschalter	Portier Couleur automatique
A—D H	Nachvertonung	Réenregistrement son
A- Dub	Nachvertonung	Réenregistrement son
AE Head	Tonlöschkopf	Tête d'effacement son
AFC	Autom. Frequenzregelung	CAF
AFC def.	AFC-Abschaltimpuls	Impulsion de blockage CAF
AFT	Autom. Feinregelung	Réglage automatique fine
AGC (Automatic Gain Control)	Autom. Verstärkungsregelung	Réglage amplification automatique
A. Head	Tonkopf	Tête d'enregistrement son
Amplifier	Verstärker	Amplificateur
Audio muting	Tonstummschaltung	Muting
BM	Spannung für Vorstufe	Tension préamplificateur
BPF	Bandpaßfilter	Filtre passe-bande
BS	Bd I Schaltspannung	Tension Commutation 1ère châme
BT	Abstimmspannung	Tension d'accord
Buffer	Pufferstufe	Convertisseur d'impédance
BV	VHF-Schaltspannung	Tension Commutation VHF
Cap Lock	Capstanschutzschaltung	Protection Cabestan
Cap ON/OFF	Capstanfreigabe	Entrainement Cabestan
Capstan short brake	Capstan-Kurzbremsung	Frein instantané du Cabestan
Cassette IN	Cassette eingelegt	Entrée Cassette
CH Lock	Kanalsperrimpuls	Impulsion de blockage
CH Select	Programmwahl	Selection des canaux
CH UP	Programmfortschaltung	Incrémentation des programmes
Clamp	Klemmschaltung	Clamping
Com = Common	Gemeinsam	Commun
Counter	Bandzähler	Compteur du band
CTLH = Control Head	Synchron-Kopf	Tête de Contrôle
Cue	Schnellvorlauf mit sichtbarem Bild	Dé filement visible rapide
CYL Lock	Kopftrommelschutzschaltung	Protection tambour
CYL ON	Kopftrommelfreigabe	Entrainement tambour
Dark Clip	Schwarzbegrenzung	Alignement du niveau du noir
Day	Tag	Jour
DEF = Defeat	Stummimpuls	Impulsion de Muting
Delayed AGC	Verzögerte Regelspannung	Réglage amplification automatique retardée
Deviation	Frequenzhub	Déviation
Dew Sensor	Feuchtigkeitssensor	Sensor d'humidité
DOC SIG	Drop-out-Kontrollsignal	Signal Drop-out
EE-VV	Aufnahme-Wiedergabe	Enregistrement-lecture
EE/VV Sel.	Aufnahme/Wiedergabewahl	Sélection enregistrement/lecture
Eject	Cassettenauswurf	Ejection
Except Rec 12 V	Außer Aufnahme 12 V	Hors d'enregistrement 12 V
FE Head	Gesamte Löschkopf	Tête d'effacement total
FF = Fast-Forward	Schnellvorlauf	Avance rapide
FF REW SOL	Schnellvorlauf-Rücklaufmagnet	Aimant pour avance/retour rapide
Frame Advance	Bildfortschaltung	Avance image par image
Heater	Heizung der Kopftrommel	Chauffage du tambour de tête
Hour	Stunde	Heure
H.P.F.	Hochpaßfilter	Filtre passe-haut
Key sel	Wahlschalter	Sélecteur mode service
Lamp out	Ausgang Cassettenlampe	Sortie lampe Cassette
Level	Pegel	Niveau
Limiter	Begrenzer	Limiteur
Loading END	Ende der Einfädelung	Terminaison de chargement
Loading M	Einfädelmotor	Moteur de charge
LP = Long Play	Langspielzeit	Funtion à demi-vitesse
LPF	Tiefpaßfilter	Filtre passe-bas
Min.	Minute	Minute
Noise Canceller	Störaustastung	Suppresseur du bruit
Non linear	nicht linear	Non-lineaire
NR SW	Dolby-Schalter	Commutateur Dolby
6 V OUT	6 V Ausgang	Sortie 6 V
Pause Reset (L)	Eingang Pause Reset	Entrée Pause Reset
PG = Pulse Generator	Kopfreferenzimpuls	Impulsion tambour
PG SW	Kopfschaltimpuls	Impulsion tambour
Pinch Sol	Capstanandruckmagnet	Aimant pour le rouleau pinceur
Power circuit	Netzschaltung	Circuit d'alimentations
Power ON	Netzspannung eingeschaltet	Commutation de Tension Secteur
Rec current	Aufnahmestrom	Préaimantation
Rec H	Aufnahme	Enregistrement
Rec Request	Aufnahme-Freigabe	Demande d'enregistrement
Reel Motor	Wickelmotor	Moteur pour entrainer les bobines receptrice et dé bitrice
Reelsensor	Hallgenerator	Générateur Hall
REF 25 HZ	25 Hz Referenzsignal	Référence 25 HZ
R E G 12 V	Geregelte Spannung 12 V	Stabilisation 12 V
Review	Schnellrücklauf mit sichtbarem Bild	Lecture en sens inverse avec defilement visible rapide
Rew = Rewind	Schnellrücklauf	Retour rapide
Select input	Eingangswahlschalter	Sélecteur d'entrée
Short Play	Kurze Wiedergabe	Reproduction instantanée
Short Stop H	Kurze Pause	Pause instantanée
SP = Standard Play	Normalspielzeit	Function à vitesse normale
Still Advance	Bildfortschaltung	Avance image par image
Still Pulse	Standbildimpuls	Impulsion pour l'image fixe
Still Short ½ (H)	Kurzes Standbild	Image fixe instantanée
Supply Photo TR	Start Sensor	Sensor Start
SW 45 V	45 V zum Netzschalter	45 V vers l'interrupteur d'alimentation
Sync. Seperator	Amplitudensieb	Séparateur de Sync.
System Control	Systemsteuerung	Système de Contrôle
Take up Photo TR	End-Sensor	Sensor fin
Tape Slack sw	Bandschlaufenschalter	Selecteur bande melée
Timer Set	Timer-setzen	Entrée réglage timer
To Servo	Zum Servo	Vers la platine Servo
To SW 12 V	12 V zum Netzschalter	12 V vers l'interrupteur d'alimentation
Tracking VR	Spurauffindungsregler	Réglage du tracking
Turn over Pulse	Umschaltimpuls	Impulsion de commutation
20 V UNREG	Ungeregelte Spannung 20 V	Tension non-régulée de 20 V
Video Head	Videokopf	Tête vidéo
VSS = Vertical Sync.	Vertikal Sync. Impuls	Sync Tramme
VXO	Regelbarer Quarzoszillator	Oscillateur à Quartz contrôlable
White clip	Weiß-Begrenzung	Alignement du niveau du blanc

Blockschaltbild Servo
Servo Block Diagram


CYLINDER SERVO CHECK POINT Ⓐ ~ Ⓔ
CAPSTAN SERVO CHECK POINT Ⓕ ~ Ⓗ
TP2003 5Vp-p 4.33KHz
50%-50% DUTY CYCLE AT SPECIFIC SPEED
VSS
FROM Y-C PACK 3PIN
V-SYNC 25Hz
4.43MHz
FROM Y-C PACK 30PIN
SERVO PACK 21PIN443MHz
HEAD SW PULSE 25Hz TP2001
H.SW.PULSE
FROM SYSTEM CONTROL
CYL ON(H)
VR2007 TRACKING VR
VR2002 TRACKING FIX
ADJUST VR2002
TP2001 0.4±0.4msec
TP2002
ADJUST VR2001
TP3002
6.5H±0.5H
VR2001 PG SHIFTER
CONTROL HEAD
CONTROL PULSE
REC(H)
D-REC
approx 4sec
D-REC 12V
P.B CTL PULSE
TP2002
Q203
AMP
VSS AMP IN REC MODE
CTL PULSE GENE
COUNT DOWN
CYL PHASE LOOP
CYL SPEED LOOP
IC207 (MN6178VAL)
LPF
C238, C239 C240
IC207-13 5Vp-p 8.66KHz
50%-50% DUTY CYCLE AT SPECIFIC SPEED
D212
HORIZONTAL CORRECTION SIGNAL
CYL MOTOR SPEED IS
INCREASED → MORE THAN 2.5V
NORMAL → DC2.5V
DECREASED → LESS THAN 2.5V
CYL FG 150Hz IC206 1PIN
CYL PG 25Hz IC206 16PIN
H.SW.P 25Hz IC206 14PIN
RESET
HEAD SW PULSE
CYLINDER ON (L)
Ⓑ CYL PG 25Hz IC206-16 5Vp-p
Ⓒ CYL FG IC206-1 5Vp-p
PB/REC 150Hz
CUE 153Hz
REV 147Hz
TRACKING M.M.V
F.F
REC CTL AMP
M.M.V.
COUNT DOWN
P.B AMP
IC206 (AN3792)
CTL PULSE(REC) CTL PULSE(P.B)
25Hz 25Hz
IC207-2 5Vp-p 17kHz
50%-50% DUTY CYCLE AT SPECIFIC SPEED
Ⓖ CAP FG FREQUENCY (COUNTED DOWN)
PB/REC 378Hz
CUE 1932Hz
REV 1840Hz
FF 2602Hz
REW 2597Hz
SLOW 290Hz
CAP MOTOR SPEED IS
INCREASED → MORE THAN 2.5V
NORMAL → D.C 2.5V
DECREASED → LESS THAN 2.5V
443MHz COUNT DOWN
THE FALLING EDGE IS SHIFTED ACCORDING TO THE TRACKING VR.
MODE SWITCH
CAP PHASE LOOP
CAP SPEED LOOP
COUNT DOWN
QR208
REF +2.8V
IN FF/REW MODE, THE VOLTAGE IS FIXED.
LPF
C203, C204
TP2004
Ⓗ TP2004 5Vp-p 4.33KHz
50%-50% DUTY CYCLE AT SPECIFIC SPEED
IC207 (MN6178VAL)
IC201 (AN3795N)
1/2 COUNT DOWN
SCHMITT
GAIN CONTROL
AMP
C244
THE ERROR VOLTAGE OM IC201-12 PIN IS C BY Q201 SWITCHING SLOW MODE
CAP FG
CO
CI
CAP REV (H)
D208
D-UNLOAD (H)
REC (H)
FF/REW (H)
D210, D211
FROM SYSTEM CONTROL CIRCUIT
CAP ON (L)
F-ADV (H)
SLOW/STILL (L)
CUE/REV (H)
D209
+5V
IC205 (BA8420) (SLOW/STILL DRIVE)
REV (H) STOP (H) FWD (L) INPUT
F-ADV (H)
CUE/REV (H) NORMAL (M) SLOW/STILL (L)
THIS SIGNAL IS USED TO DECIDE THE CAPSTAN MOTOR BRAKE TIMING
IN SLOW MODE IT WORKS TO DECIDE THE CAPSTAN BRAKE TIMING BEING TRIGGERED BY P.B CTL PULSE
MM6
IN SLOW/STILL MODE THIS CIRCUIT WORKS TO MAKE V-LOCK PULSE.
MM1
P.B CTL PULSE
H.SW PULSE
TO COMPENSATE SWAYING PICTURE, THE CYLINDER MOTOR IS CONTROLLED
HORIZONTAL SWAY
THE ROTATION DIRECTION FOR THE CAPSTAN MOTOR IS CONTROLLED
REV (H) STOP (M) FOR (L)
OUTPUT
THIS SIGNAL CONTROLS THE CAPSTAN MOTOR IN SLOW MODE
FULL TORQUE
CURRENT LIMIT
ROTARY SW
VR2003 V-LOCK
QR205
"SERVO PACK" VJB02225
VR2008 SLOW TRACKING
VR2011 SLOW TRACKING FIX
H AMP SW
H SW PULSE
CYLINDER SERVO SPEED LOOP
CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO PHASE LOOP

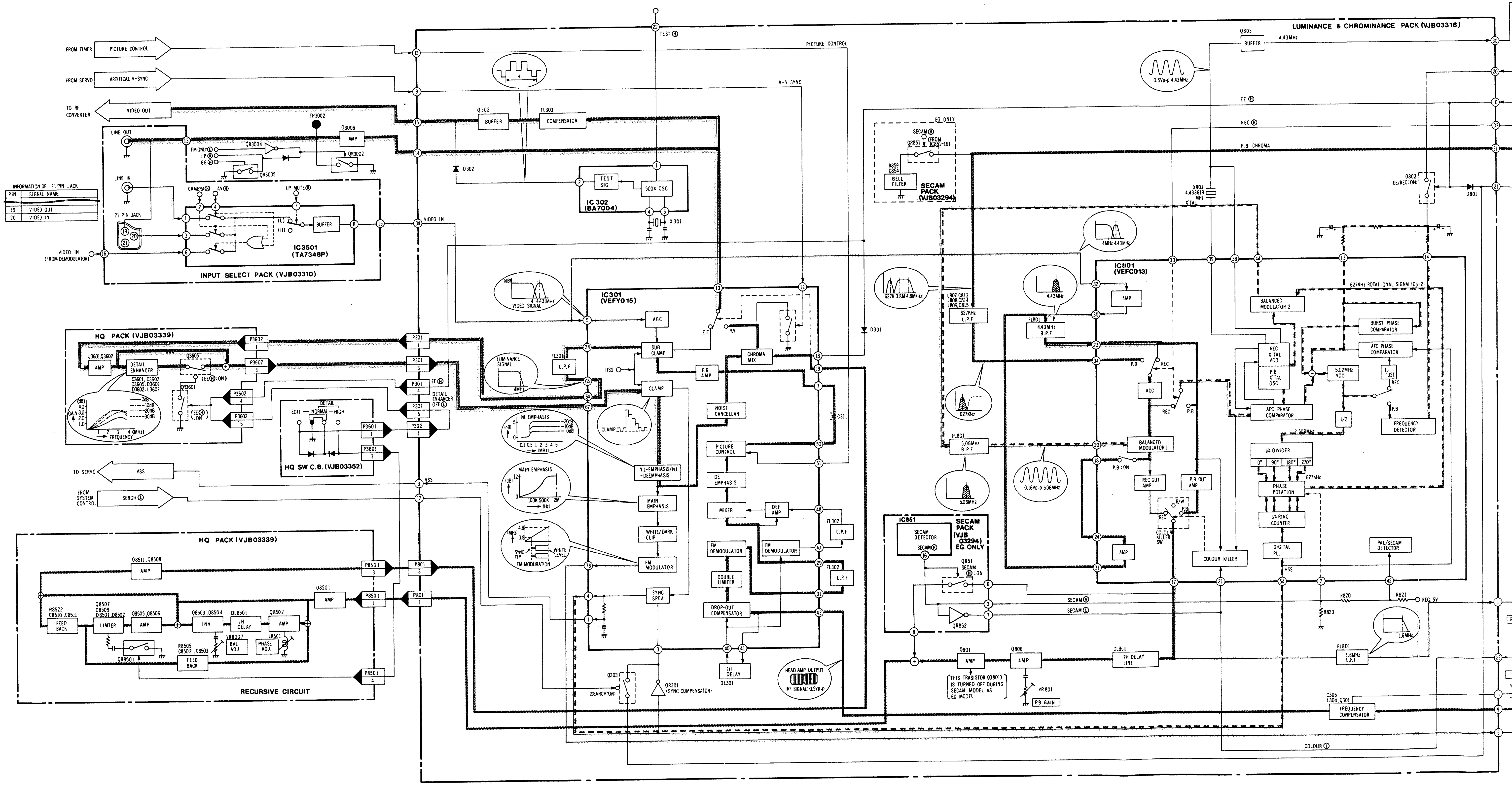
MODE / SERVO PACK	P.B	REC	CUE (X5)	REV (X5)	FF (X7)	REW (X7)	STILL
14 PIN	H	L	H	H	H	H	L
16 PIN	L	H	H	H	H	H	L
8 PIN	L	L	L	H	L	H	L

Blockschaltbild Servo
Servo Block Diagram

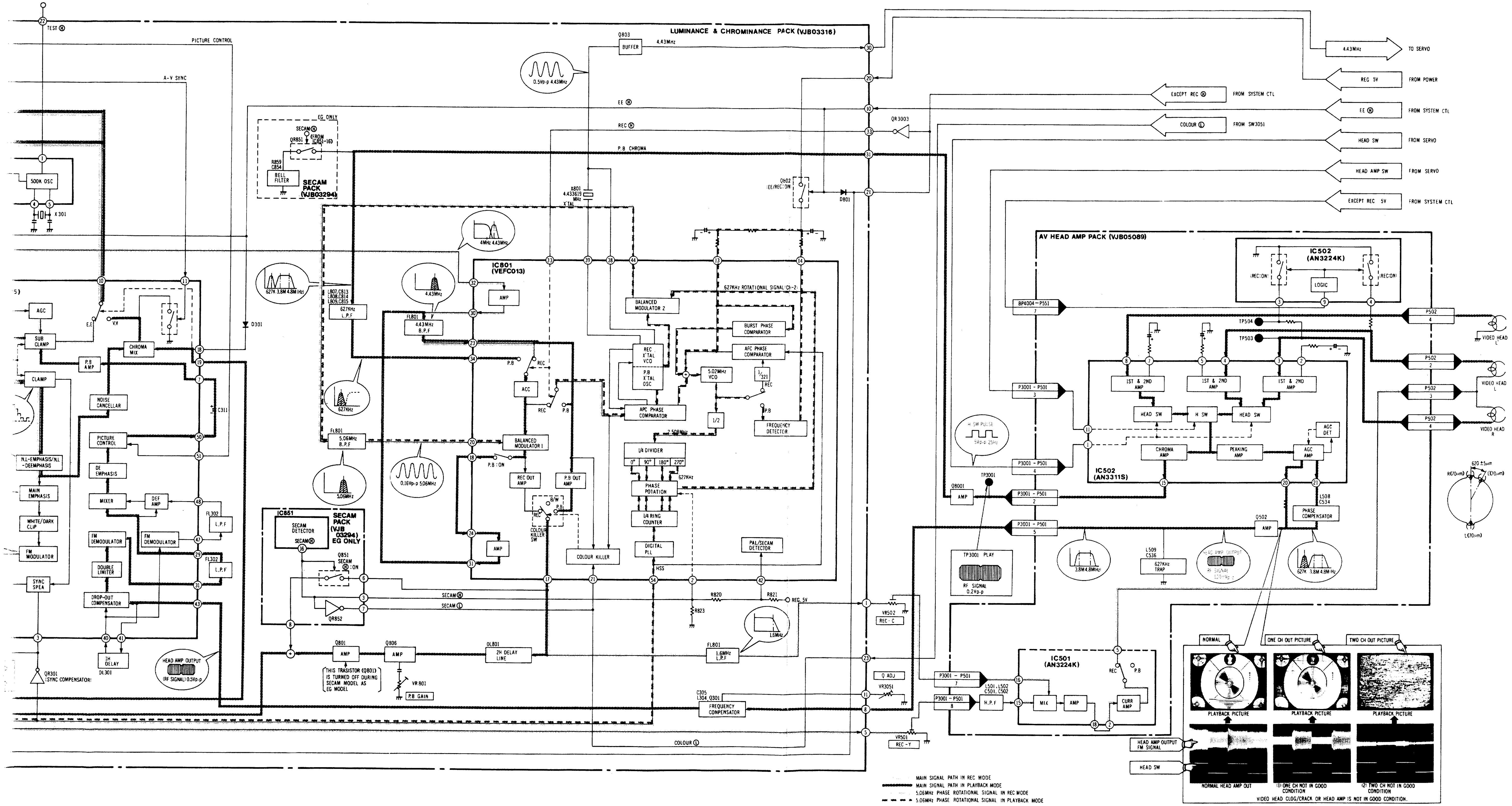

CYLINDER SERVO CHECK POINT Ⓐ ~ Ⓕ
CAPSTAN SERVO CHECK POINT Ⓖ ~ Ⓗ
TP2003 5Vp-p 4.33KHz (50%-50% DUTY CYCLE AT SPECIFIC SPEED)
VSS
FROM Y-C PACK 3PIN
V-SYNC 25Hz
4.43MHz
FROM Y-C PACK 30PIN
SERVO PACK 21PIN4.43MHz
HEAD SW PULSE 25Hz TP2001
TP2001
H.SW.PULSE
FROM SYSTEM CONTROL
CYL ON(H)
+5V
VR2007 TRACKING VR
VR2002 TRACKING FIX
ADJUST VR2002
0.4±0.4msec
ADJUST VR2001
6.5H±0.5H
VR2001 PG SHIFTER
CONTROL HEAD
CONTROL PULSE
REC(H)
D-REC
approx 4sec
D-REC 12V
TP2002
P.B CTL PULSE
CO
CI
CAP REV (H)
D208
D-UNLOAD (H)
REC (H)
FF/REW (H)
FROM SYSTEM CONTROL CIRCUIT
D210, D211
CAP ON (L)
F-ADV (H)
D209
SLOW/STILL(L)
CUE/REV (H)
Q203 AMP
VSS AMP IN REC MODE
REC
CYL PHASE LOOP
CTL PULSE GENE
COUNT DOWN
CYL SPEED LOOP
IC 207 (MN6178VAL)
TP2003
LPF
C238, C239 C240
IC207-13 5Vp-p 8.66KHz (50%-50% DUTY CYCLE AT SPECIFIC SPEED)
D212
HORIZONTAL CORRECTION SIGNAL
CYL FG
CYL MOTOR SPEED IS (INCREASED → MORE THAN 2.5V; NORMAL → DC2.5V; DECREASED → LESS THAN 2.5V)
H-SWAY CONTROL
QR202 Q205
REF +2.8V
CYL FG 150Hz IC206 1PIN
CYL PG 25Hz IC206 16PIN
RESET
H.SW.P 25Hz IC206 14PIN
HEAD SW PULSE
CYLINDER ON (L)
Ⓑ CYL PG 25Hz IC206-16 5Vp-p
TRACKING M.M.V
F.F
REC CTL AMP
M.M.V.
COUNT DOWN
P.B AMP
IC 206 (AN3792)
Ⓒ CYL FG IC206-1 5Vp-p PB/REC 150Hz CUE 153Hz REV 147Hz
CTL PULSE(REC) CTL PULSE(P.B) 25Hz 25Hz
IC207-2 5Vp-p 17kHz (50%-50% DUTY CYCLE AT SPECIFIC SPEED)
Ⓖ CAP FG FREQUENCY (COUNTED DOWN) PB/REC 378Hz CUE 1932Hz REV 1840Hz FF 2602Hz REW 2597Hz SLOW 290Hz
CAP MOTOR SPEED IS (INCREASED → MORE THAN 2.5V; NORMAL → D.C 2.5V; DECREASED → LESS THAN 2.5V)
CAP FG FREQUENCY PB/REC 756Hz CUE 3860Hz REV 3680Hz FF 5203Hz REW 5194Hz SLOW 580Hz
THE FALLING EDGE IS SHIFTED ACCORDING TO THE TRACKING VR.
443MHz COUNT DOWN
CAP PHASE LOOP
CAP SPEED LOOP
MODE SWITCH
QR208
REF +2.8V (IN FF/REW MODE, THE VOLTAGE IS FIXED.)
LPF
C203, C204
TP2004
Ⓗ TP2004 5Vp-p 4.33KHz (50%-50% DUTY CYCLE AT SPECIFIC SPEED)
IC 207 (MN6178VAL)
IC201 (AN3795N)
1/2 COUNT DOWN
SCHMITT
GAIN CONTROL
AMP
C244
Q201
THE ERROR VOLTAGE FROM IC201-12PIN IS CUTOFF BY Q201 SWITCHING ON IN SLOW MODE
IC205 (BA8420) (SLOW/STILL DRIVE)
REV (H) STOP (H) FWD (L) INPUT
THIS SIGNAL IS USED TO DECIDE THE CAPSTAN MOTOR BRAKE TIMING
P.B CTL PULSE
H.SW PULSE
TO COMPENSATE SWAYING PICTURE, THE CYLINDER MOTOR IS CONTROLLED
HORIZONTAL SWAY
THE ROTATION DIRECTION FOR THE CAPSTAN MOTOR IS CONTROLLED
REV (H) STOP (M) FOR (L) OUTPUT
THIS SIGNAL CONTROLS THE CAPSTAN MOTOR IN SLOW MODE
FULL TORQUE
CURRENT LIMIT
F-ADV (H)
CUE/REV (H) NORMAL (M) SLOW/STILL(L)
IN SLOW MODE IT WORKS TO DECIDE THE CAPSTAN BRAKE TIMING BEING TRIGGERED BY P.B CTL PULSE MM6
IN SLOW/STILL MODE THIS CIRCUIT WORKS TO MAKE V-LOCK PULSE. MM1
ROTARY SW
VR2003 V-LOCK
QR205
+5V
"SERVO PACK" VJB02225
VR2008 SLOW TRACKING
VR2011 SLOW TRACKING FIX
H AMP SW
H SW PULSE
QR2002
SS MOTOR OFF(L)
REG +12.3V
UNREG +14V
IC203 ①②㉓ 11Vp-p 150Hz
P201 10
P201 1
P201 4
P201 7
P201 8
P201 5
P201 9
P201 3
ERROR VOLTAGE
MOTOR DRIVE
TORQUE CONTROL
DIFFERENTIAL AMPLIFIER
CURRENT FEED BACK
D204
R227
PG
FG
POSITION SIGNAL PROCESS
IC203 (AN6387) (CYLINDER MOTOR DRIVE)
HEM
HEM
HES
HES
DD CYLINDER MOTOR
M1 M2 M3 N S
CAPSTAN FG SIGNAL
P6002 2
P6002 6
P6002 13
P6002 12
FG HEAD
REFERENCE +2.8V
MOTOR CURRENT IS FED BACK TO THE TORQUE CONTROL
ERROR VOLTAGE
TP2020
R2005
R2006
CURRENT IN SLOW MODE 560mV
TORQUE DERECTION
CAP REVERSE (H) CAP STOP (M) CAP FORWARD (L)
TORQUE RIPPLE CANCELL
UNREG +14V
IC2001 ①③㉓ 2.2Vp-p
MOTOR DRIVE
TORQUE CONTROL
DIFFERENTIAL AMPLIFIER
POSITION SIGNAL PROCESS
IC2001 (AN3821K) (CAPSTAN MOTOR DRIVE)
P6002 11
P6002 10
P6002 5
P6002 4
P6002 9
P6002 7
H3⁻ H3⁺ H2⁻ H2⁺ H1⁻ H1⁺
DD CAPSTAN MOTOR
5V
R2004
V LOCK
QR2001
R2019
QR2006
QR2005
x2 PLAY(L)
QR2007
DURING UNLOAD-2(H)
ROTARY SW
TO WIND UP LOSENED TAPE, CAP TORQUE IS REDUCED BY THIS SIGNAL.
STILL MODE
CUE/REV ×2 PLAY MODE
H.SW
V-LOCK
400 μsec
270μsec 140μsec 270μsec 140μsec
140μsec 140μsec 140μsec 140μsec
CYLINDER SERVO SPEED LOOP
CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO PHASE LOOP

MODE / SERVO PACK	P.B	REC	CUE (X5)	REV (X5)	FF (X7)	REW (X7)	STILL
14 PIN	H	L	H	H	H	H	L
16 PIN	L	H	H	H	H	H	L
8 PIN	L	L	L	H	L	H	L

Blockschaltbild Luminanz- und Farbteil
Luminance and Chrominance Block Diagram


FROM TIMER
PICTURE CONTROL
FROM SERVO
ARTIFICAL V-SYNC
TO RF CONVERTER
VIDEO OUT
LINE OUT
LINE IN
21 PIN JACK
INFORMATION OF 21 PIN JACK
PIN SIGNAL NAME
19 VIDEO OUT
20 VIDEO IN
VIDEO IN (FROM DEMODULATOR)
TP3002
Q3006
AMP
QR3004
QR3002
QR3005
FM ONLY
LP
EE
CAMERA
AV
LP MUTE
BUFFER
IC3501 (TA7348P)
INPUT SELECT PACK (VJB03310)
TEST
Q302
BUFFER
FL303
COMPENSATOR
D302
TEST SIG
500K OSC
IC 302 (BA7004)
X301
PICTURE CONTROL
A-V SYNC
VIDEO IN
IC301 (VEFY015)
AGC
SUB CLAMP
CLAMP
HSS
CHROMA MIX
P.B AMP
NOISE CANCELLAR
PICTURE CONTROL
DE EMPHASIS
MIXER
DEF AMP
FM DEMODULATOR
DOUBLE LIMITER
DROP-OUT COMPENSATOR
1H DELAY
DL301
N.L-EMPHASIS/N.L -DEEMPHASIS
MAIN EMPHASIS
WHITE/DARK CLIP
FM MODULATOR
SYNC SPEA
FL301
L.P.F
FL302
C311
D301
VIDEO SIGNAL
4.43(MHz)
LUMINANCE SIGNAL
4MHz
NL EMPHASIS
MAIN EMPHASIS
100K 500K 2M
SYNC TIP
WHITE LEVEL
FM MODURATION
HEAD AMP OUTPUT (RF SIGNAL) 0.5Vp-p
Q303
(SEARCH:ON)
QR301 (SYNC COMPENSATOR)
HQ PACK (VJB03339)
Q3601,Q3602
AMP
DETAIL ENHANCER
C3601, C3602 C3605, D3601 D3602, L3602
Q3605
QR3601
(EE: ON)
0dB
-10dB
-20dB
-30dB
GAIN
FREQUENCY
P3602
P301
P302
EE
DETAIL ENHANCER OFF
DETAIL
EDIT
NORMAL
HIGH
P3601
HQ SW C.B. (VJB03352)
TO SERVO
VSS
FROM SYSTEM CONTROL
SERCH
HQ PACK (VJB03339)
Q8511, Q8508
AMP
P8501
P801
Q8501
AMP
R8522 C8510, C8511
FEED BACK
Q8507 C8509 D8501, D8502
LIMTER
Q8505, Q8506
AMP
Q8503, Q8504
INV
DL8501
1H DELAY
Q8502
AMP
R8505 C8502, C8503
VR8007
BAL ADJ.
L8501
PHASE ADJ.
QR8501
FEED BACK
RECURSIVE CIRCUIT
EE ONLY
SECAM
QR851
(FROM IC851-16)
R859 C854
BELL FILTER
SECAM PACK (VJB03294)
L807, C813 L808, C814 L809, C815
627KHz L.P.F
627K 3.8M 4.8M(Hz)
FL801
4.43MHz B.P.F
5.06MHz B.P.F
627KHz
5.06MHz
0.16Vp-p 5.06MHz
4MHz 4.43MHz
IC801 (VEFC013)
AMP
P.B
REC
ACC
BALANCED MODULATOR 1
P.B:ON
REC OUT AMP
P.B OUT AMP
B/W
COLOUR KILLER SW
AMP
COLOUR KILLER
IC851
SECAM DETECTOR
SECAM PACK (VJB 03294) EG ONLY
Q851 SECAM :ON
QR852
SECAM
Q801
AMP
Q806
AMP
THIS TRASISTOR (Q801) IS TURNED OFF DURING SECAM MODEL AS EG MODEL
VR801
P.B GAIN
DL801
2H DELAY LINE
LUMINANCE & CHROMINANCE PACK (VJB03316)
Q803
BUFFER
4.43MHz
0.5Vp-p 4.43MHz
EE
REC
P.B CHROMA
X801 4.433619 MHz X'TAL
Q802 (EE/REC:ON)
D801
627KHz ROTATIONAL SIGNAL
BALANCED MODULATOR 2
BURST PHASE COMPARATOR
AFC PHASE COMPARATOR
REC X'TAL VCO
P.B X'TAL OSC
5.02MHz VCO
1/321
APC PHASE COMPARATOR
1/2
FREQUENCY DETECTOR
2.508MHz
1/4 DIVIDER
0° 90° 180° 270°
PHASE POTATION
1/4 RING COUNTER
DIGITAL PLL
PAL/SECAM DETECTOR
HSS
R820
R821
REG. 5V
R823
FL801
1.6MHz L.P.F
1.6MHz
C305 L304, Q301
FREQUENCY CONPENSATOR
COLOUR

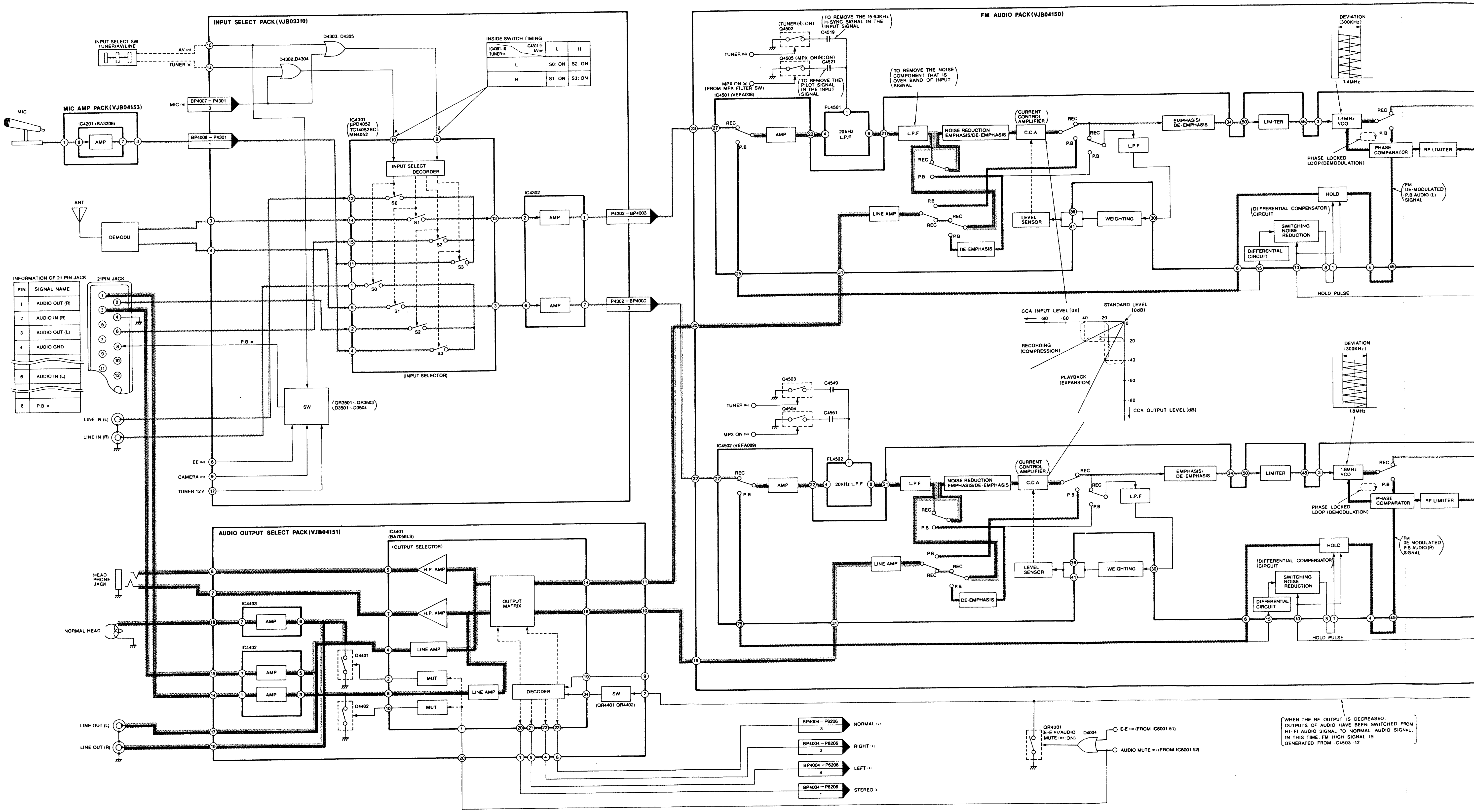
Blockschaltbild Luminanz- und Farbteil
Luminance and Chrominance Block Diagram



LUMINANCE & CHROMINANCE PACK (VJB03316)
TEST Ⓗ
PICTURE CONTROL
A-V SYNC
500K OSC
X301
AGC
SUB CLAMP
CLAMP
P.B AMP
CHROMA MIX
NOISE CANCELLAR
PICTURE CONTROL
N.L-EMPHASIS/N.L-DEEMPHASIS
DE EMPHASIS
MAIN EMPHASIS
MIXER
DEF AMP
WHITE/DARK CLIP
FM DEMODULATOR
FM MODULATOR
DOUBLE LIMITER
SYNC SPEA
DROP-OUT COMPENSATOR
1H DELAY
DL301
QR301 (SYNC COMPENSATOR)
HEAD AMP OUTPUT (RF SIGNAL) 0.5Vp-p
FL302 L.P.F
C311
D301
EG ONLY
SECAM Ⓗ
QR851
BELL FILTER
SECAM PACK (VJB03294)
Q803 BUFFER
4.43MHz
0.5Vp-p 4.43MHz
EE Ⓗ
REC Ⓗ
P.B CHROMA
X801 4.433619 MHz X'TAL
IC801 (VEFC013)
627KHz 3.8M 4.8M(Hz)
L807,C813 L808,C814 L809,C815 627KHz L.P.F
4MHz 4.43MHz
FL801 4.43MHz B.P.F
AMP
ACC
627KHz
FL801 5.06MHz B.P.F
5.06MHz
0.16Vp-p 5.06MHz
BALANCED MODULATOR 1
P.B : ON
REC OUT AMP
P.B OUT AMP
B/W
COLOUR KILLER SW
COLOUR KILLER
BALANCED MODULATOR 2
627KHz ROTATIONAL SIGNAL (CH-2)
BURST PHASE COMPARATOR
AFC PHASE COMPARATOR
REC X'TAL VCO
P.B X'TAL OSC
5.02MHz VCO
1/321
APC PHASE COMPARATOR
1/2
2.508MHz
FREQUENCY DETECTOR
1/4 DIVIDER
0° 90° 180° 270°
627KHz
PHASE ROTATION
1/4 RING COUNTER
DIGITAL PLL
HSS
PAL/SECAM DETECTOR
IC851 SECAM DETECTOR
SECAM PACK (VJB 03294) EG ONLY
Q851 SECAM Ⓗ: ON
QR852
SECAM Ⓗ
SECAM Ⓛ
R820
R821
REG. 5V
R823
Q801 AMP
Q806 AMP
THIS TRASISTOR (Q801) IS TURNED OFF DURING SECAM MODEL AS EG MODEL
VR801 P.B GAIN
DL801 2H DELAY LINE
FL801 1.6MHz L.P.F
1.6MHz
C305 L304 Q301 FREQUENCY COMPENSATOR
COLOUR Ⓛ
Q602 (EE/REC ON)
D801
QR3003
4.43MHz TO SERVO
REG 5V FROM POWER
EXCEPT REC Ⓗ FROM SYSTEM CTL
EE Ⓗ FROM SYSTEM CTL
COLOUR Ⓛ FROM SW3051
HEAD SW FROM SERVO
HEAD AMP SW FROM SERVO
EXCEPT REC 5V FROM SYSTEM CTL
AV HEAD AMP PACK (VJB05089)
IC502 (AN3224K)
(REC ON)
LOGIC
BP4004 – P551
TP504
TP503
1ST & 2ND AMP
HEAD SW
H SW
P3001 – P501
H SW PULSE 5Vp-p 25Hz
CHROMA AMP
PEAKING AMP
AGC DET
AGC AMP
IC502 (AN3311S)
Q8001 AMP
TP3001
PHASE COMPENSATOR
L508 C534
Q502 AMP
TP3001 PLAY
RF SIGNAL 0.2Vp-p
3.8M 4.8MHz
L509 C536 627KHz TRAP
HEAD AMP OUTPUT RF SIGNAL 120mVp-p
627K 3.8M 4.8MHz
P502
VIDEO HEAD L
VIDEO HEAD R
620 ±5μm
R(70μm)
L(70μm)
VR502 REC-C
Q ADJ
VR3051
VR501 REC-Y
IC501 (AN3224K)
REC P.B
L501, L502 C501, C502
H.P.F
MIX
AMP
CURR AMP
NORMAL
ONE CH OUT PICTURE
TWO CH OUT PICTURE
PLAYBACK PICTURE
HEAD AMP OUTPUT FM SIGNAL
HEAD SW
NORMAL HEAD AMP OUT
(1) ONE CH NOT IN GOOD CONDITION
(2) TWO CH NOT IN GOOD CONDITION
VIDEO HEAD CLOG/CRACK OR HEAD AMP IS NOT IN GOOD CONDITION.
MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
5.06MHz PHASE ROTATIONAL SIGNAL IN REC MODE
5.06MHz PHASE ROTATIONAL SIGNAL IN PLAYBACK MODE

Blockschaltbild FM-Audio
FM Audio Block Diagram

Block
FM A

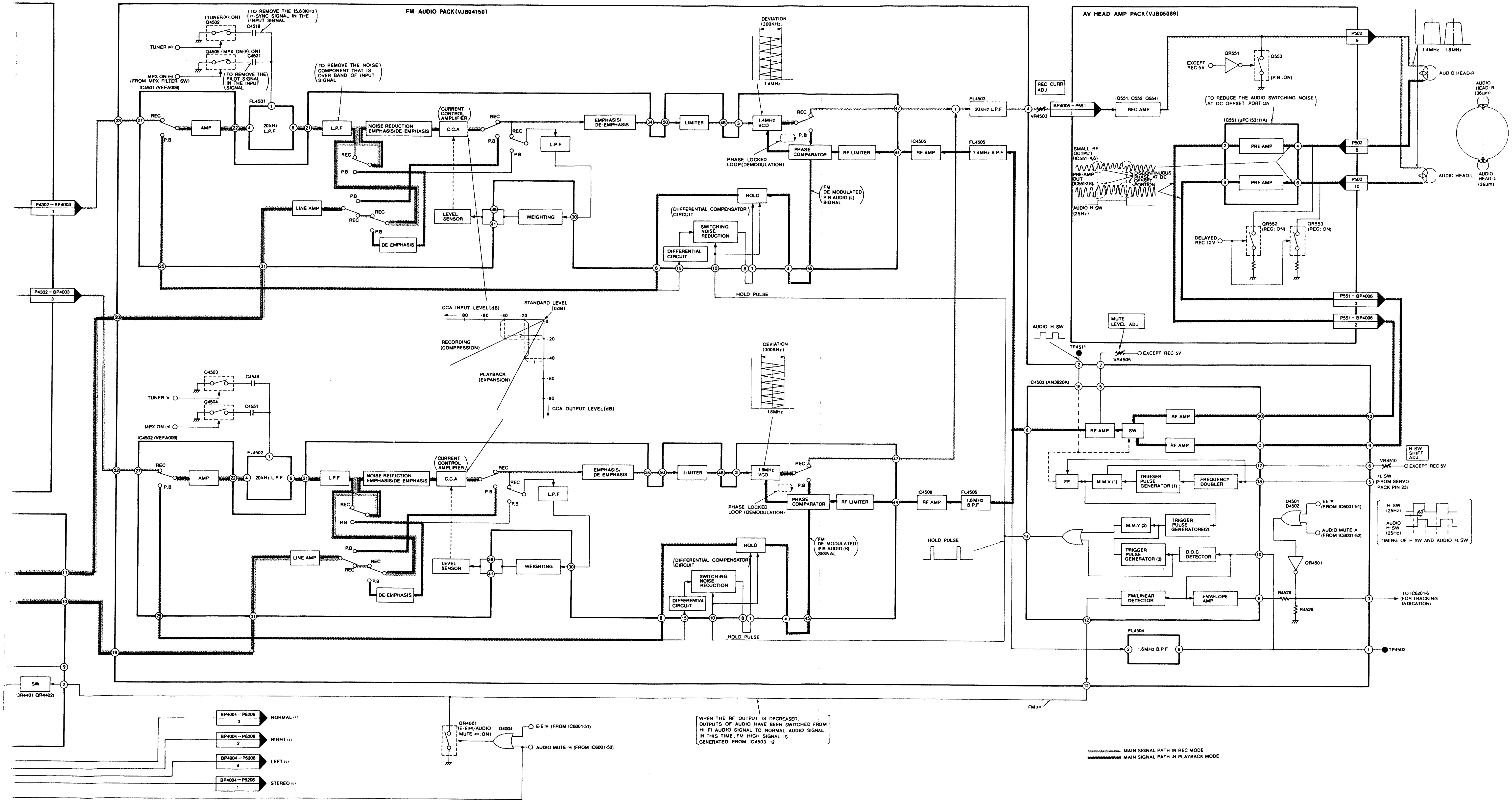

INPUT SELECT PACK (VJB03310)
INPUT SELECT SW TUNER/AV/LINE
AV (H)
TUNER (H)
D4303, D4305
D4302,D4304
INSIDE SWITCH TIMING
IC4301-10: TUNER (H)
IC4301-9: AV (H)
L
H
S0: ON
S2: ON
S1: ON
S3: ON
MIC
MIC AMP PACK (VJB04153)
IC4201 (BA3308)
AMP
MIC (H)
BP4007 – P4301
3
BP4008 – P4301
1
IC4301 (μPD4052 TC14052BC MN4052)
A
B
INPUT SELECT DECORDER
S0
S1
S2
S3
IC4302
AMP
P4302 – BP4003
1
P4302 – BP4002
3
ANT
DEMODU
21PIN JACK
P.B (H)
(INPUT SELECTOR)
SW
(QR3501 – QR3503 D3501 – D3504)
LINE IN (L)
LINE IN (R)
EE (H)
CAMERA (H)
TUNER 12V
AUDIO OUTPUT SELECT PACK (VJB04151)
IC4401 (BA7056LS)
(OUTPUT SELECTOR)
HEAD PHONE JACK
H.P. AMP
OUTPUT MATRIX
IC4403
IC4402
NORMAL HEAD
LINE AMP
Q4401
Q4402
MUT
DECODER
SW
(QR4401 QR4402)
LINE OUT (L)
LINE OUT (R)
BP4004 – P6206
3
NORMAL (L)
2
RIGHT (L)
4
LEFT (L)
1
STEREO (L)
FM AUDIO PACK (VJB04150)
(TUNER (H): ON)
Q4502
C4519
(TO REMOVE THE 15.63KHz H-SYNC SIGNAL IN THE INPUT SIGNAL)
TUNER (H)
Q4505 (MPX ON (H): ON)
C4521
MPX ON (H) (FROM MPX FILTER SW)
(TO REMOVE THE PILOT SIGNAL IN THE INPUT SIGNAL)
IC4501 (VEFA008)
FL4501
REC
P.B
20kHz L.P.F
L.P.F
(TO REMOVE THE NOISE COMPONENT THAT IS OVER BAND OF INPUT SIGNAL)
NOISE REDUCTION EMPHASIS/DE-EMPHASIS
(CURRENT CONTROL AMPLIFIER)
C.C.A
EMPHASIS/ DE-EMPHASIS
LIMITER
1.4MHz VCO
DEVIATION (300KHz)
1.4MHz
PHASE COMPARATOR
RF LIMITER
PHASE LOCKED LOOP (DEMODULATION)
(FM DE-MODULATED P.B AUDIO (L) SIGNAL)
HOLD
(DIFFERENTIAL COMPENSATOR CIRCUIT)
SWITCHING NOISE REDUCTION
DIFFERENTIAL CIRCUIT
HOLD PULSE
LINE AMP
LEVEL SENSOR
WEIGHTING
DE-EMPHASIS
CCA INPUT LEVEL (dB)
STANDARD LEVEL (0dB)
-80
-60
-40
-20
0
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
CCA OUTPUT LEVEL (dB)
Q4503
C4549
Q4504
C4551
TUNER (H)
MPX ON (H)
IC4502 (VEFA009)
FL4502
20kHz L.P.F
1.8MHz VCO
1.8MHz
(FM DE-MODULATED P.B AUDIO (R) SIGNAL)
QR4001 (E-E (H)/AUDIO MUTE (H): ON)
D4004
E-E (H) (FROM IC6001-51)
AUDIO MUTE (H) (FROM IC6001-52)

INFORMATION OF 21 PIN JACK

PIN	SIGNAL NAME
1	AUDIO OUT (R)
2	AUDIO IN (R)
3	AUDIO OUT (L)
4	AUDIO GND
6	AUDIO IN (L)
8	P.B (H)

(WHEN THE RF OUTPUT IS DECREASED.
OUTPUTS OF AUDIO HAVE BEEN SWITCHED FROM
HI-FI AUDIO SIGNAL TO NORMAL AUDIO SIGNAL.
IN THIS TIME, FM HIGH SIGNAL IS
GENERATED FROM IC4503-12)

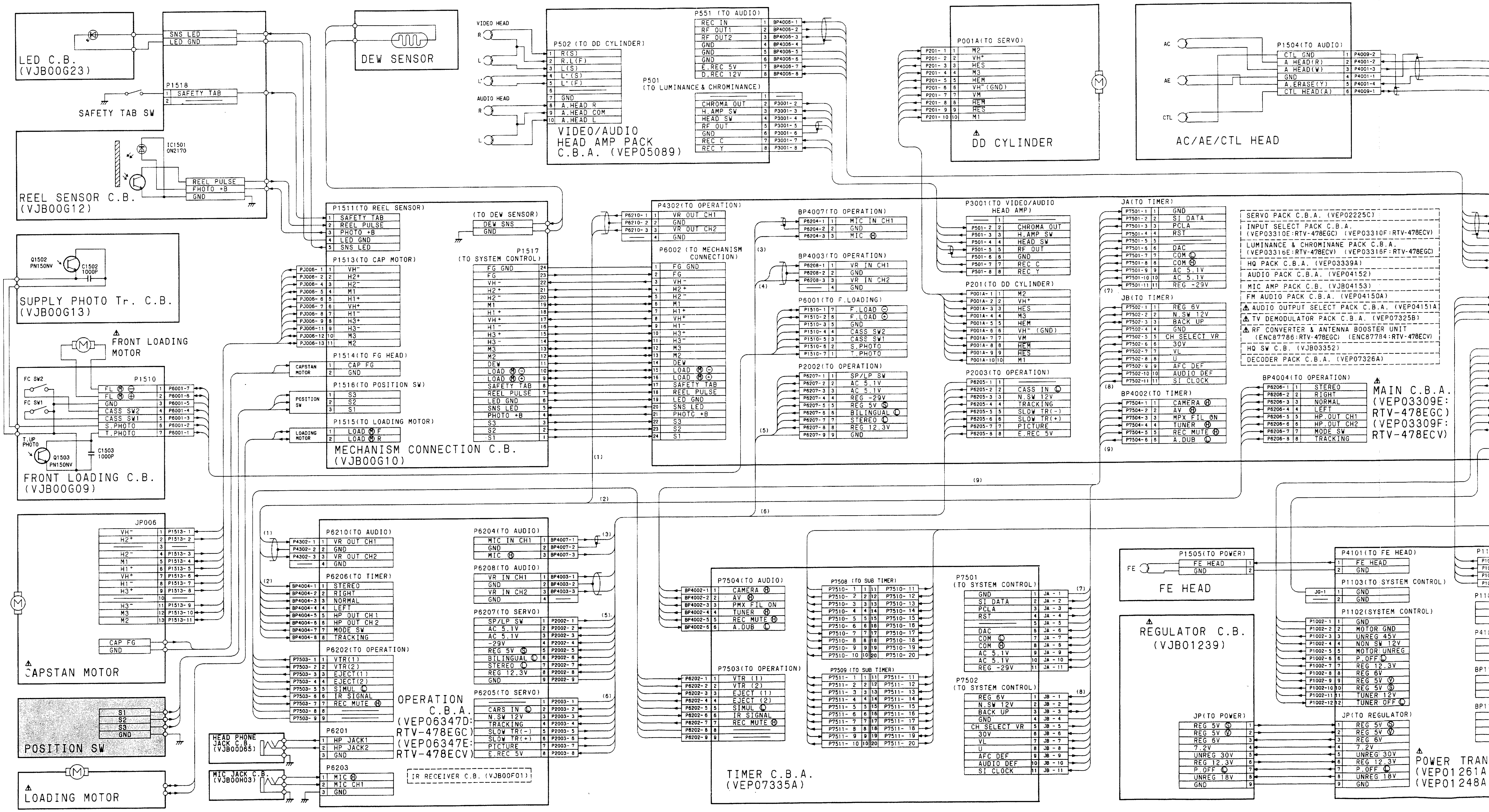
Blockschaltbild FM-Audio
FM Audio Block Diagram


FM AUDIO PACK (VJB04150)
(TUNER(H):ON)
Q4502
C4519
(TO REMOVE THE 15.63KHz H-SYNC SIGNAL IN THE INPUT SIGNAL)
TUNER (H)
Q4505 (MPX ON(H):ON)
C4521
MPX ON (H) (FROM MPX FILTER SW)
(TO REMOVE THE PILOT SIGNAL IN THE INPUT SIGNAL)
IC4501 (VEFA008)
FL4501
20kHz L.P.F
REC
P.B
AMP
L.P.F
(TO REMOVE THE NOISE COMPONENT THAT IS OVER BAND OF INPUT SIGNAL)
NOISE REDUCTION EMPHASIS/DE-EMPHASIS
(CURRENT CONTROL AMPLIFIER)
C.C.A
EMPHASIS/ DE-EMPHASIS
LIMITER
DEVIATION (300KHz)
1.4MHz
1.4MHz VCO
PHASE COMPARATOR
RF LIMITER
PHASE LOCKED LOOP(DEMODULATION)
(FM DE-MODULATED P.B AUDIO (L) SIGNAL)
HOLD
(DIFFERENTIAL COMPENSATOR CIRCUIT)
SWITCHING NOISE REDUCTION
DIFFERENTIAL CIRCUIT
HOLD PULSE
LINE AMP
DE-EMPHASIS
LEVEL SENSOR
WEIGHTING
IC4505
RF AMP
FL4505
1.4MHz B.P.F
FL4503
20kHz L.P.F
REC CURR ADJ.
VR4503
P4302 – BP4003 1
P4302 – BP4003 3
CCA INPUT LEVEL (dB)
-80 -60 -40 -20
STANDARD LEVEL (0dB)
0 -20 -40 -60 -80
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
CCA OUTPUT LEVEL (dB)
Q4503
C4549
Q4504
C4551
TUNER (H)
MPX ON (H)
IC4502 (VEFA009)
FL4502
20kHz L.P.F
1.8MHz
1.8MHz VCO
IC4506
FL4506
1.8MHz B.P.F
(FM DE-MODULATED P.B AUDIO (R) SIGNAL)
HOLD PULSE
SW
QR4401 QR4402
BP4004 – P6206 3 NORMAL (L)
BP4004 – P6206 2 RIGHT (L)
BP4004 – P6206 4 LEFT (L)
BP4004 – P6206 1 STEREO (L)
QR4001 (E-E(H)/AUDIO MUTE (H): ON)
D4004
E-E (H) (FROM IC6001-51)
AUDIO MUTE (H) (FROM IC6001-52)
AV HEAD AMP PACK (VJB05089)
BP4006 – P551 1
(Q551, Q552, Q554)
REC AMP
EXCEPT REC 5V
QR551
Q553
(P.B :ON)
(TO REDUCE THE AUDIO SWITCHING NOISE AT DC OFFSET PORTION)
IC551 (µPC1531HA)
PRE-AMP
PRE-AMP
SMALL RF OUTPUT (IC551-4,6)
PRE-AMP OUT (IC551-2,8)
DISCONTINUOUS PHASE AT DC OFFSET PORTION
AUDIO H.SW (25Hz)
DELAYED REC 12V
QR552 (REC: ON)
QR553 (REC: ON)
P502 9
P502 8
P502 10
P551 – BP4006 3
P551 – BP4006 2
1.4MHz 1.8MHz
AUDIO HEAD-R
AUDIO HEAD-L
AUDIO HEAD-R (36µm)
AUDIO HEAD-L (36µm)
MUTE LEVEL ADJ.
AUDIO H.SW
TP4511
VR4505
EXCEPT REC 5V
IC4503 (AN3920K)
RF AMP
SW
RF AMP
RF AMP
FF
M.M.V (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
M.M.V (2)
TRIGGER PULSE GENERATORE(2)
TRIGGER PULSE GENERATOR (3)
D.O.C DETECTOR
FM/LINEAR DETECTOR
ENVELOPE AMP
FL4504
1.6MHz B.P.F
TP4502
H.SW SHIFT ADJ.
VR4510
EXCEPT REC 5V
H. SW (FROM SERVO PACK PIN 23)
D4501 D4502
EE (H) (FROM IC6001-51)
AUDIO MUTE (H) (FROM IC6001-52)
QR4501
R4528
R4529
TO IC6201-6 (FOR TRACKING INDICATION)
H. SW (25Hz)
AUDIO H·SW (25Hz)
60°
TIMING OF H.SW AND AUDIO H.SW
FM (H)

WHEN THE RF OUTPUT IS DECREASED, OUTPUTS OF AUDIO HAVE BEEN SWITCHED FROM HI-FI AUDIO SIGNAL TO NORMAL AUDIO SIGNAL. IN THIS TIME, FM HIGH SIGNAL IS GENERATED FROM IC4503-12

▨ MAIN SIGNAL PATH IN REC MODE
▬ MAIN SIGNAL PATH IN PLAYBACK MODE

Verdrahtungsplan
Interconnection Schematic Diagram

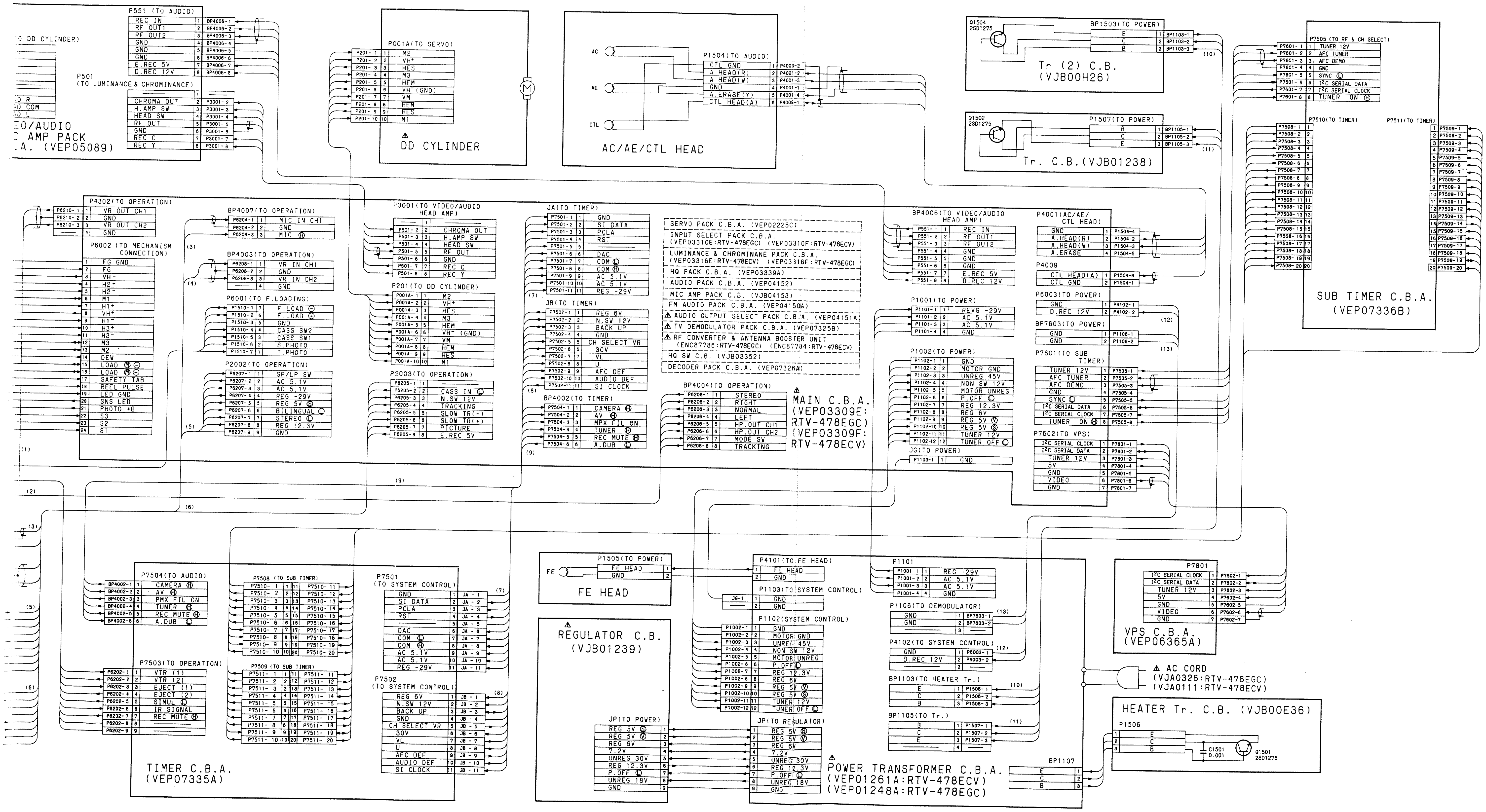

LED C.B. (VJB00G23)
SNS LED
LED GND
P1518
SAFETY TAB
SAFETY TAB SW
IC1501 ON2170
REEL PULSE
PHOTO +B
GND
REEL SENSOR C.B. (VJB00G12)
Q1502 PN150NV
C1502 1000P
SUPPLY PHOTO Tr. C.B. (VJB00G13)
FRONT LOADING MOTOR
FC SW2
FC SW1
P1510
FL
CASS SW2
CASS SW1
S.PHOTO
T.PHOTO
T.UP PHOTO
Q1503 PN150NV
C1503 1000P
FRONT LOADING C.B. (VJB00G09)
JP006
CAP FG
CAPSTAN MOTOR
S1
S2
S3
POSITION SW
LOADING MOTOR
DEW SENSOR
VIDEO HEAD
AUDIO HEAD
P502 (TO DD CYLINDER)
R(S)
R.L(F)
L(S)
L'(S)
L'(F)
A.HEAD R
A.HEAD COM
A.HEAD L
VIDEO/AUDIO HEAD AMP PACK C.B.A. (VEP05089)
P551 (TO AUDIO)
REC IN
RF OUT1
RF OUT2
E.REC 5V
D.REC 12V
P501 (TO LUMINANCE & CHROMINANCE)
CHROMA OUT
H.AMP SW
HEAD SW
RF OUT
REC C
REC Y
P001A (TO SERVO)
M2
VH+
HES
M3
HEM
VH- (GND)
VM
M1
DD CYLINDER
AC
AE
CTL
P1504 (TO AUDIO)
CTL GND
A.HEAD(R)
A.HEAD(W)
A.ERASE(Y)
CTL HEAD(A)
AC/AE/CTL HEAD
P1511 (TO REEL SENSOR)
P1513 (TO CAP MOTOR)
P1514 (TO FG HEAD)
P1516 (TO POSITION SW)
P1515 (TO LOADING MOTOR)
LOAD F
LOAD R
(TO DEW SENSOR)
DEW SNS
P1517 (TO SYSTEM CONTROL)
MECHANISM CONNECTION C.B. (VJB00G10)
P4302 (TO OPERATION)
VR OUT CH1
VR OUT CH2
P6002 (TO MECHANISM CONNECTION)
BP4007 (TO OPERATION)
MIC IN CH1
MIC
BP4003 (TO OPERATION)
VR IN CH1
VR IN CH2
P6001 (TO F.LOADING)
F.LOAD
P2002 (TO OPERATION)
SP/LP SW
AC 5.1V
REG -29V
REG 5V
BILINGUAL
STEREO
REG 12.3V
P3001 (TO VIDEO/AUDIO HEAD AMP)
P201 (TO DD CYLINDER)
P2003 (TO OPERATION)
CASS IN
N.SW 12V
TRACKING
SLOW TR(-)
SLOW TR(+)
PICTURE
E.REC 5V
JA (TO TIMER)
SI DATA
PCLA
RST
DAC
COM
AC 5.1V
JB (TO TIMER)
REG 6V
BACK UP
CH SELECT VR
30V
VL
U
AFC DEF
AUDIO DEF
SI CLOCK
BP4002 (TO TIMER)
CAMERA
AV
MPX FIL ON
TUNER
REC MUTE
A.DUB
SERVO PACK C.B.A. (VEP02225C)
INPUT SELECT PACK C.B.A. (VEP03310E:RTV-478EGC) (VEP03310F:RTV-478ECV)
LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03316E:RTV-478ECV) (VEP03316F:RTV-478EGC)
HQ PACK C.B.A. (VEP03339A)
AUDIO PACK C.B.A. (VEP04152)
MIC AMP PACK C.B. (VJB04153)
FM AUDIO PACK C.B.A. (VEP04150A)
AUDIO OUTPUT SELECT PACK C.B.A. (VEP04151A)
TV DEMODULATOR PACK C.B.A. (VEP07325B)
RF CONVERTER & ANTENNA BOOSTER UNIT (ENC87786:RTV-478EGC) (ENC87784:RTV-478ECV)
HQ SW C.B. (VJB03352)
DECODER PACK C.B.A. (VEP07326A)
BP4004 (TO OPERATION)
STEREO
RIGHT
NORMAL
LEFT
HP.OUT CH1
HP.OUT CH2
MODE SW
MAIN C.B.A. (VEP03309E: RTV-478EGC) (VEP03309F: RTV-478ECV)
P6210 (TO AUDIO)
P6206 (TO TIMER)
P6202 (TO OPERATION)
VTR(1)
VTR(2)
EJECT(1)
EJECT(2)
SIMUL
IR SIGNAL
P6201
HP JACK1
HP JACK2
HEAD PHONE JACK C.B. (VJB00D65)
P6203
MIC CH1
MIC JACK C.B. (VJB00H03)
P6204 (TO AUDIO)
P6208 (TO AUDIO)
P6207 (TO SERVO)
P6205 (TO SERVO)
OPERATION C.B.A. (VEP06347D: RTV-478EGC) (VEP06347E: RTV-478ECV)
IR RECEIVER C.B. (VJB00F01)
P7504 (TO AUDIO)
P7503 (TO OPERATION)
P7508 (TO SUB TIMER)
P7509 (TO SUB TIMER)
P7501 (TO SYSTEM CONTROL)
P7502 (TO SYSTEM CONTROL)
TIMER C.B.A. (VEP07335A)
FE
P1505 (TO POWER)
FE HEAD
REGULATOR C.B. (VJB01239)
JP (TO POWER)
REG 5V
REG 6V
7.2V
UNREG 30V
P.OFF
UNREG 18V
P4101 (TO FE HEAD)
P1103 (TO SYSTEM CONTROL)
P1102 (SYSTEM CONTROL)
MOTOR GND
UNREG 45V
NON SW 12V
MOTOR UNREG
TUNER 12V
TUNER OFF
JP (TO REGULATOR)
POWER TRAN
(VEP01261A
(VEP01248A
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)

Funktions-Wahlschalter/Mode Select-Switch (POSITION SW)

MODE SELECT CONDITION

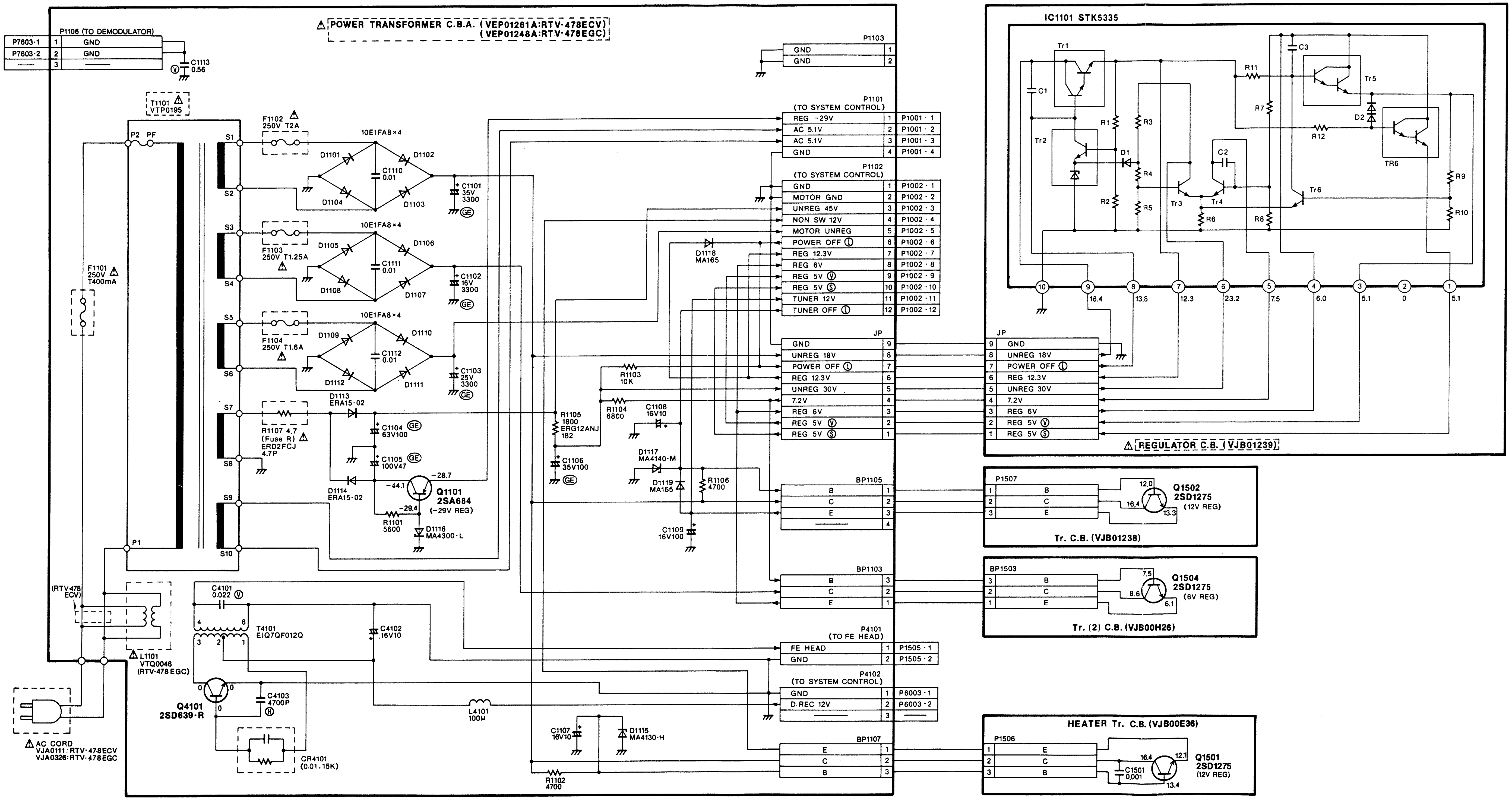
Sicherheits
Security co

Verdrahtungsplan
Interconnection Schematic Diagram


DD CYLINDER
P551 (TO AUDIO)
P501 (TO LUMINANCE & CHROMINANCE)
EO/AUDIO AMP PACK .A. (VEP05089)
P001A (TO SERVO)
DD CYLINDER
P1504 (TO AUDIO)
AC/AE/CTL HEAD
BP1503 (TO POWER)
Tr (2) C.B. (VJB00H26)
BP1507 (TO POWER)
Tr. C.B. (VJB01238)
P7505 (TO RF & CH SELECT)
P7510 (TO TIMER)
P7511 (TO TIMER)
SUB TIMER C.B.A. (VEP07336B)
P4302 (TO OPERATION)
P6002 (TO MECHANISM CONNECTION)
BP4007 (TO OPERATION)
BP4003 (TO OPERATION)
P6001 (TO F.LOADING)
P2002 (TO OPERATION)
P3001 (TO VIDEO/AUDIO HEAD AMP)
P201 (TO DD CYLINDER)
P2003 (TO OPERATION)
JA (TO TIMER)
JB (TO TIMER)
BP4002 (TO TIMER)
SERVO PACK C.B.A. (VEP02225C)
INPUT SELECT PACK C.B.A. (VEP03310E: RTV-478EGC) (VEP03310F: RTV-478ECV)
LUMINANCE & CHROMINANE PACK C.B.A. (VEP03316E: RTV-478ECV) (VEP03316F: RTV-478EGC)
HQ PACK C.B.A. (VEP03339A)
AUDIO PACK C.B.A. (VEP04152)
MIC AMP PACK C.B.A. (VJB04153)
FM AUDIO PACK C.B.A. (VEP04150A)
AUDIO OUTPUT SELECT PACK C.B.A. (VEP04151A)
TV DEMODULATOR PACK C.B.A. (VEP07325B)
RF CONVERTER & ANTENNA BOOSTER UNIT (ENC87786: RTV-478EGC) (ENC87784: RTV-478ECV)
HQ SW C.B. (VJB03352)
DECODER PACK C.B.A. (VEP07326A)
BP4004 (TO OPERATION)
MAIN C.B.A. (VEP03309E: RTV-478EGC) (VEP03309F: RTV-478ECV)
BP4006 (TO VIDEO/AUDIO HEAD AMP)
P1001 (TO POWER)
P1002 (TO POWER)
JG (TO POWER)
P4001 (AC/AE/CTL HEAD)
P4009
P6003 (TO POWER)
BP7603 (TO POWER)
P7601 (TO SUB TIMER)
P7602 (TO VPS)
P7504 (TO AUDIO)
P7508 (TO SUB TIMER)
P7509 (TO SUB TIMER)
P7503 (TO OPERATION)
P7501 (TO SYSTEM CONTROL)
P7502 (TO SYSTEM CONTROL)
TIMER C.B.A. (VEP07335A)
P1505 (TO POWER)
FE HEAD
REGULATOR C.B. (VJB01239)
JP (TO POWER)
P4101 (TO FE HEAD)
P1103 (TO SYSTEM CONTROL)
P1102 (SYSTEM CONTROL)
JP (TO REGULATOR)
P1101
P1106 (TO DEMODULATOR)
P4102 (TO SYSTEM CONTROL)
BP1103 (TO HEATER Tr.)
BP1105 (TO Tr.)
POWER TRANSFORMER C.B.A. (VEP01261A: RTV-478ECV) (VEP01248A: RTV-478EGC)
BP1107
P7801
VPS C.B.A. (VEP06365A)
AC CORD (VJA0326: RTV-478EGC) (VJA0111: RTV-478ECV)
HEATER Tr. C.B. (VJB00E36)
P1506
Q1501 2SD1275
C1501 0.001

⚠ Sicherheitsbauelement (muß durch Originalteil ersetzt werden)
Security component (must be replaced by original part)

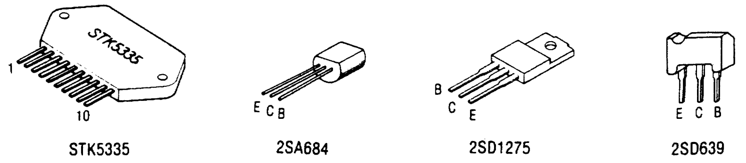
Schaltbild Netzteil (Primär und Sekundär)
Power Supply Schematic Diagram (Primary and Secondary)


POWER TRANSFORMER C.B.A. (VEP01261A:RTV-478ECV) (VEP01248A:RTV-478EGC)
P1106 (TO DEMODULATOR)
P7603-1 1 GND
P7603-2 2 GND
3
C1113 0.56
T1101 VTP0195
P2 PF
F1101 250V T400mA
F1102 250V T2A
F1103 250V T1.25A
F1104 250V T1.6A
10E1FA8×4
D1101 D1102 D1103 D1104
D1105 D1106 D1107 D1108
D1109 D1110 D1111 D1112
C1110 0.01
C1111 0.01
C1112 0.01
C1101 35V 3300
C1102 16V 3300
C1103 25V 3300
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 P1
D1113 ERA15-02
R1107 4.7 (Fuse R) ERD2FCJ 4.7P
C1104 63V100
C1105 100V47
D1114 ERA15-02
Q1101 2SA684 (-29V REG)
-28.7
-44.1
-29.4
R1101 5600
D1116 MA4300-L
R1105 1800 ERG12ANJ 182
C1106 35V100
R1103 10K
R1104 6800
C1108 16V10
D1117 MA4140-M
D1119 MA165
R1106 4700
C1109 16V100
D1118 MA165
P1103
GND 1
GND 2
P1101 (TO SYSTEM CONTROL)
REG -29V 1 P1001 · 1
AC 5.1V 2 P1001 · 2
AC 5.1V 3 P1001 · 3
GND 4 P1001 · 4
P1102 (TO SYSTEM CONTROL)
GND 1 P1002 · 1
MOTOR GND 2 P1002 · 2
UNREG 45V 3 P1002 · 3
NON SW 12V 4 P1002 · 4
MOTOR UNREG 5 P1002 · 5
POWER OFF Ⓛ 6 P1002 · 6
REG 12.3V 7 P1002 · 7
REG 6V 8 P1002 · 8
REG 5V Ⓥ 9 P1002 · 9
REG 5V Ⓢ 10 P1002 · 10
TUNER 12V 11 P1002 · 11
TUNER OFF Ⓛ 12 P1002 · 12
JP
GND 9
UNREG 18V 8
POWER OFF Ⓛ 7
REG 12.3V 6
UNREG 30V 5
7.2V 4
REG 6V 3
REG 5V Ⓥ 2
REG 5V Ⓢ 1
BP1105
B 1
C 2
E 3
4
BP1103
B 3
C 2
E 1
P4101 (TO FE HEAD)
FE HEAD 1 P1505 · 1
GND 2 P1505 · 2
P4102 (TO SYSTEM CONTROL)
GND 1 P6003 · 1
D.REC 12V 2 P6003 · 2
3
BP1107
E 1
C 2
B 3
(RTV-478 ECV)
L1101 VTQ0046 (RTV-478 EGC)
C4101 0.022 Ⓥ
T4101 EIQ7QF012Q
C4102 16V10
Q4101 2SD639-R
C4103 4700P
CR4101 (0.01, 15K)
L4101 100µ
C1107 16V10
D1115 MA4130-H
R1102 4700
AC CORD VJA0111: RTV-478ECV VJA0326: RTV-478EGC
IC1101 STK5335
Tr1 Tr2 Tr3 Tr4 Tr5 TR6 Tr6
C1 C2 C3
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12
D1 D2
10 9 8 7 6 5 4 3 2 1
16.4 13.6 12.3 23.2 7.5 6.0 5.1 0 5.1
JP
9 GND
8 UNREG 18V
7 POWER OFF Ⓛ
6 REG 12.3V
5 UNREG 30V
4 7.2V
3 REG 6V
2 REG 5V Ⓥ
1 REG 5V Ⓢ
REGULATOR C.B. (VJB01239)
P1507
1 B
2 C
3 E
Q1502 2SD1275 (12V REG)
12.0 16.4 13.3
Tr. C.B. (VJB01238)
BP1503
3 B
2 C
1 E
Q1504 2SD1275 (6V REG)
7.5 8.6 6.1
Tr. (2) C.B. (VJB00H26)
HEATER Tr. C.B. (VJB00E36)
P1506
1 E
2 C
3 B
C1501 0.001
Q1501 2SD1275 (12V REG)
16.4 12.1 13.4

⚠ Sicherheitsbauelement (muß durch Originalteil ersetzt werden)
Security component (must be replaced by original part)

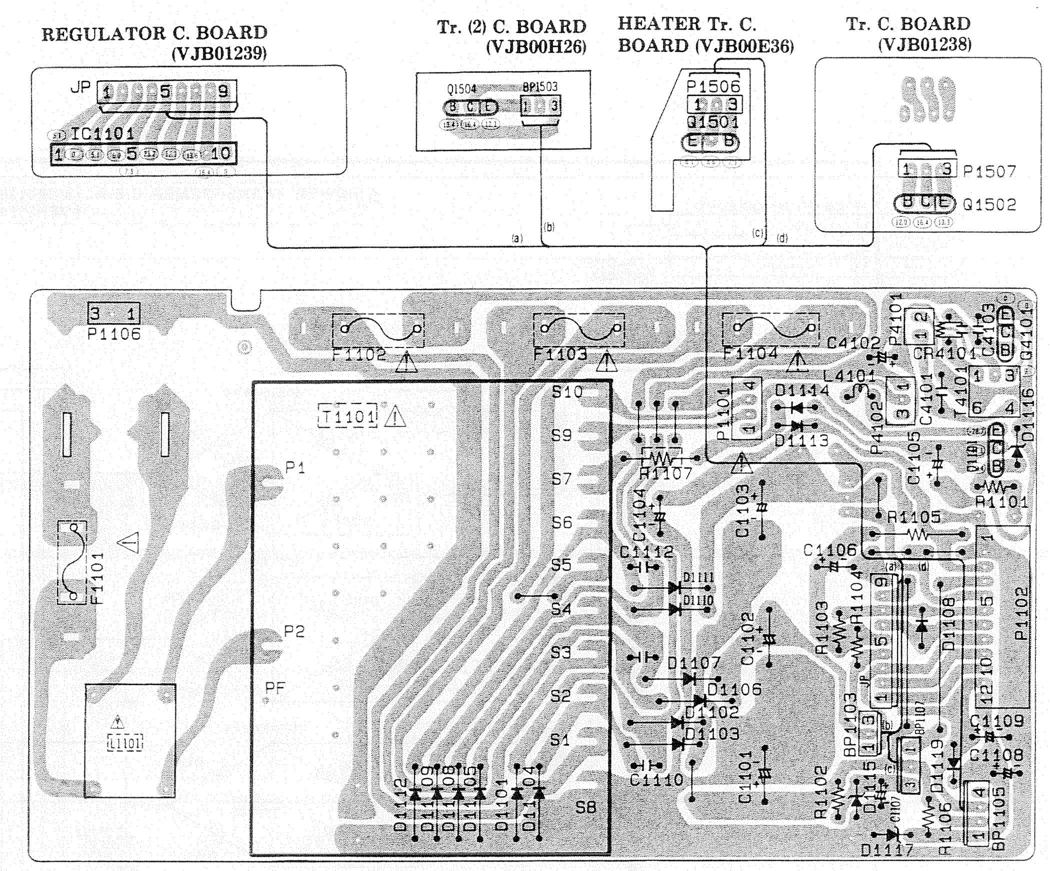
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen.
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥.

Halbleiter-Anschlußpunkte
Semi Conductor Connection

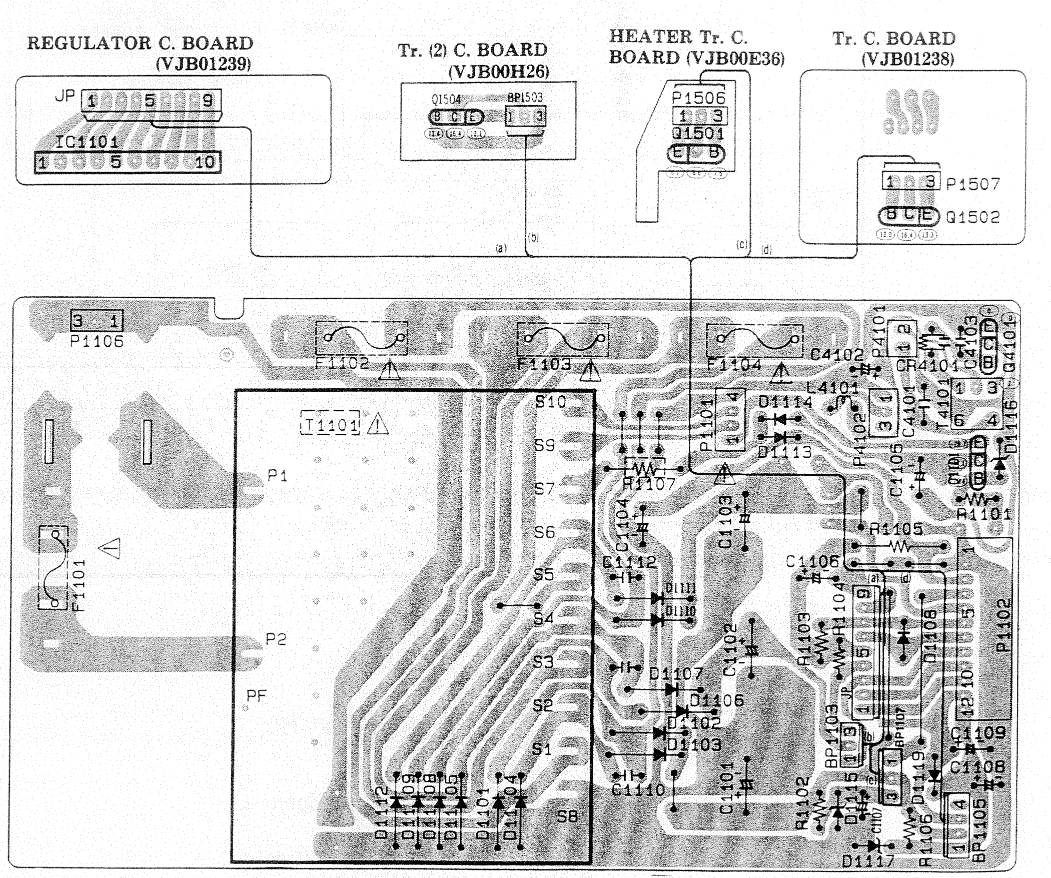

STK5335
1
10
E C B
B C E
E C B

STK5335 2SA684 2SD1275 2SD639

Transformator-Platine
Power Transformer Circuit Board (RTV-478 EGC)

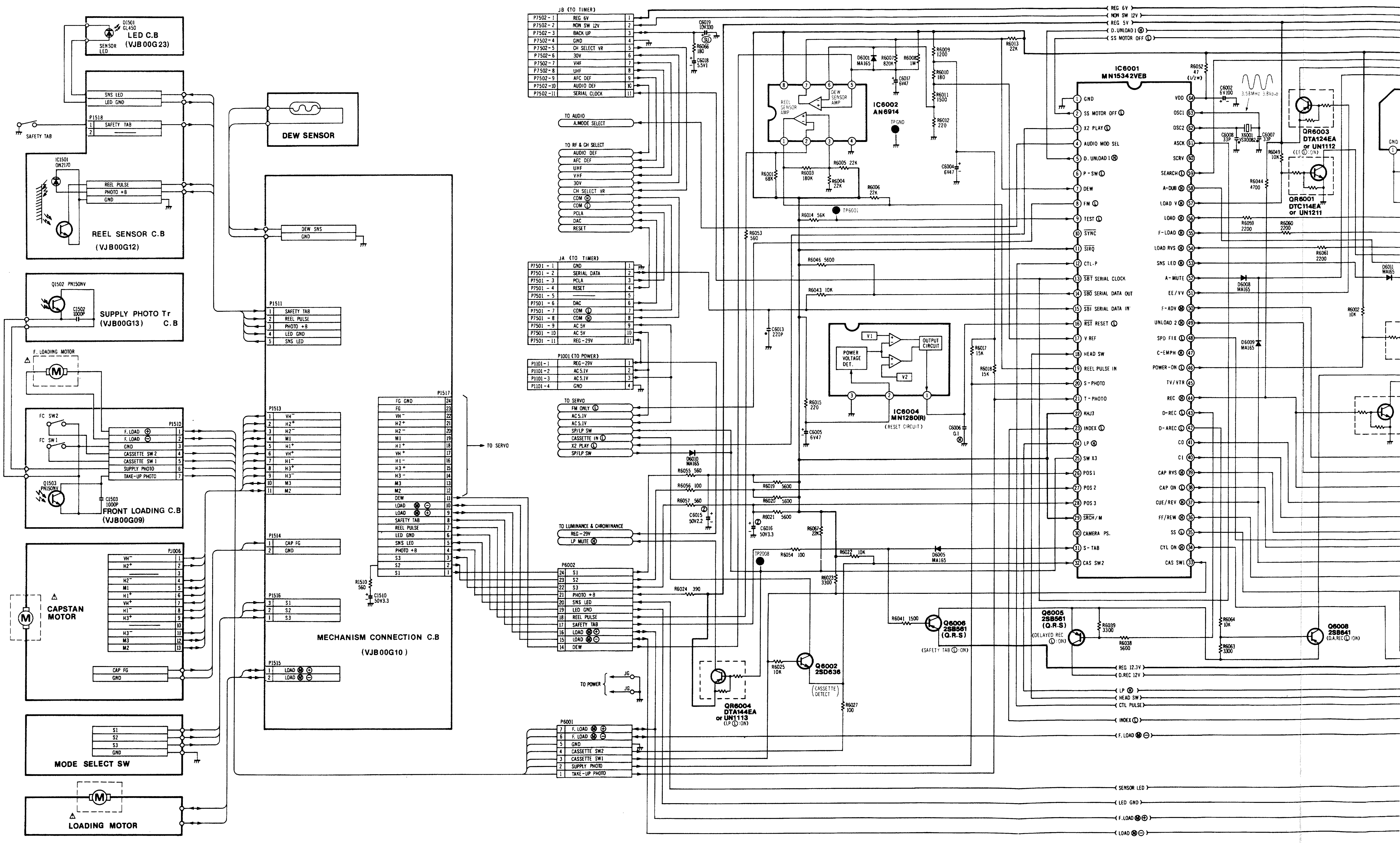

REGULATOR C. BOARD (VJB01239)
Tr. (2) C. BOARD (VJB00H26)
HEATER Tr. C. BOARD (VJB00E36)
Tr. C. BOARD (VJB01238)
JP
IC1101
Q1504
BP1503
P1506
Q1501
P1507
Q1502
(a)
(b)
(c)
(d)
P1106
F1102
F1103
F1104
T1101
F1101
P1
P2
PF
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
P1101
P1102
P4101
P4102
C4102
CR4101
L4101
T4101
Q4101
C4103
C4101
C4105
D1113
D1114
D1116
R1101
R1105
R1107
C1101
C1102
C1103
C1104
C1106
C1108
C1109
C1110
C1112
D1101
D1102
D1103
D1104
D1106
D1107
D1108
D1110
D1111
D1112
D1115
D1117
D1119
R1102
R1103
R1104
R1106
BP1103
BP1105
BP1107

Transformator-Platine
Power Transformer Circuit Board (RTV-478 ECV)


REGULATOR C. BOARD (VJB01239)
Tr. (2) C. BOARD (VJB00H26)
HEATER Tr. C. BOARD (VJB00E36)
Tr. C. BOARD (VJB01238)
JP
IC1101
Q1504
BP1503
P1506
Q1501
P1507
Q1502
(a)
(b)
(c)
(d)
P1106
F1102
F1103
F1104
T1101
F1101
P1
P2
PF
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
P1101
P1102
P4101
P4102
C4102
CR4101
L4101
T4101
Q4101
C4103
C4101
C4105
D1113
D1114
D1116
R1101
R1105
R1107
C1101
C1102
C1103
C1104
C1106
C1108
C1109
C1110
C1112
D1101
D1102
D1103
D1106
D1107
D1108
D1110
D1111
D1112
D1115
D1117
D1119
R1102
R1103
R1104
R1106
BP1103
BP1105
BP1107

Schaltbild der Systemsteuerung
System Control Schematic Diagram

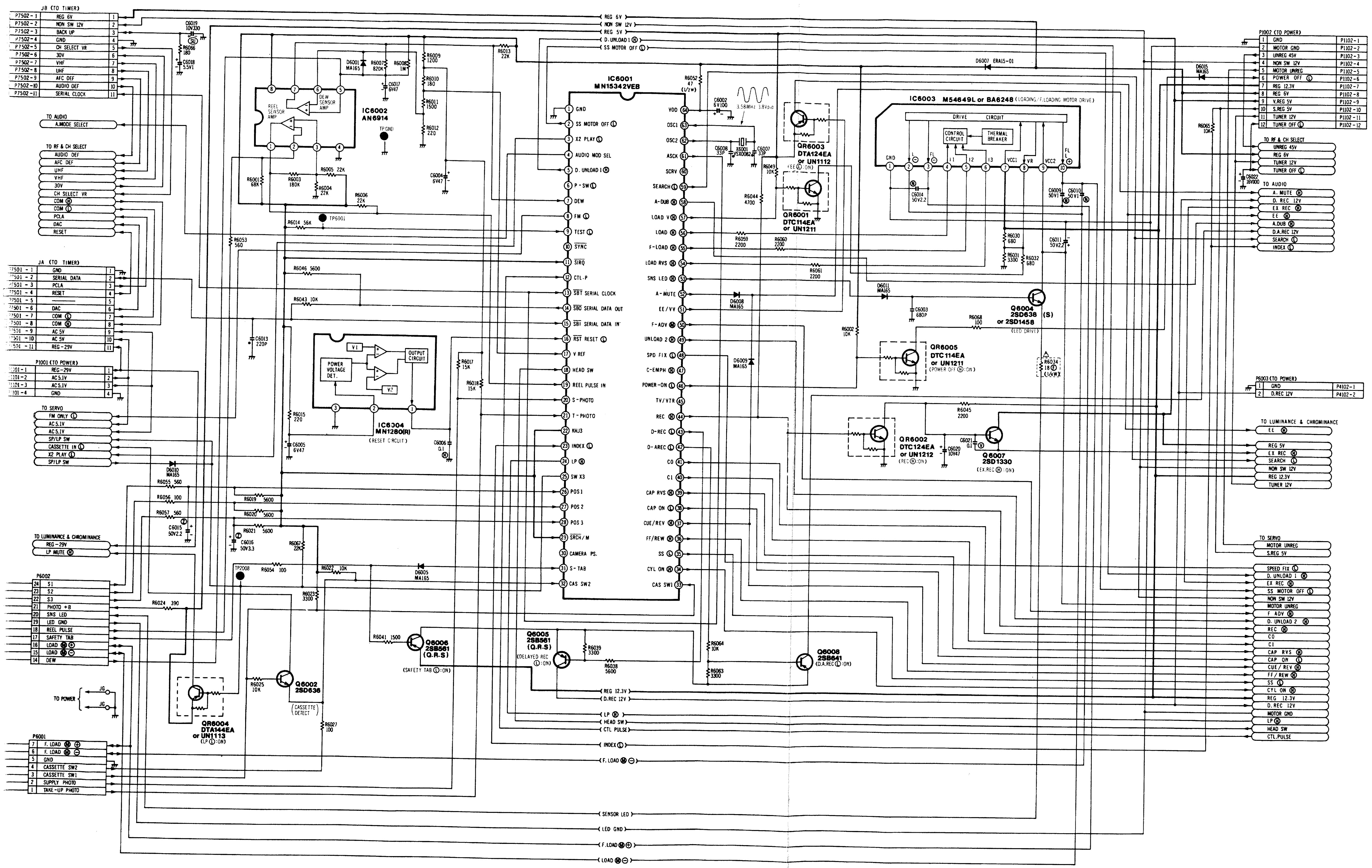
Schaltbi
System


LED C.B (VJB00G23)
Q1501 GL450
SENSOR LED
SNS LED
LED GND
P1518
SAFETY TAB
IC1501 ON2170
REEL PULSE
PHOTO +B
GND
REEL SENSOR C.B (VJB00G12)
Q1502 PN150NV
C1502 1000P
SUPPLY PHOTO Tr (VJB00G13) C.B
F. LOADING MOTOR
FC SW2
FC SW1
P1510
F. LOAD ⊕
F. LOAD ⊖
CASSETTE SW2
CASSETTE SW1
SUPPLY PHOTO
TAKE-UP PHOTO
Q1503 PN150NV
C1503 1000P
FRONT LOADING C.B (VJB00G09)
PJ006
CAPSTAN MOTOR
CAP FG
MODE SELECT SW
S1
S2
S3
LOADING MOTOR
DEW SENSOR
DEW SNS
P1511
P1513
P1514
P1516
P1515
P1517
TO SERVO
R1510 560
C1510 50V3.3
MECHANISM CONNECTION C.B (VJB00G10)
JB (TO TIMER)
P7502-1 … P7502-11
REG 6V
NON SW 12V
BACK UP
CH SELECT VR
30V
VHF
UHF
AFC DEF
AUDIO DEF
SERIAL CLOCK
TO AUDIO
A.MODE SELECT
TO RF & CH SELECT
COM Ⓡ
COM Ⓛ
PCLA
DAC
RESET
JA (TO TIMER)
P7501-1 … P7501-11
SERIAL DATA
AC 5V
REG -29V
P1101 (TO POWER)
AC5.1V
TO SERVO
FM ONLY Ⓛ
SP/LP SW
CASSETTE IN Ⓛ
X2 PLAY Ⓛ
TO LUMINANCE & CHROMINANCE
LP MUTE Ⓗ
P6002
P6001
TO POWER
JG
IC6002 AN6914
REEL SENSOR AMP
DEW SENSOR AMP
TP GND
TP6001
IC6004 MN1280(R) (RESET CIRCUIT)
POWER VOLTAGE DET.
OUTPUT CIRCUIT
V1
V2
TP2008
QR6004 DTA144EA or UN1113 (LP Ⓛ:ON)
Q6002 2SD636 (CASSETTE DETECT)
Q6006 2SB561 (Q.R.S) (SAFETY TAB Ⓛ:ON)
Q6005 2SB561 (Q.R.S) (DELAYED REC Ⓛ:ON)
Q6008 2SB641 (D.A.REC Ⓛ:ON)
IC6001 MN15342VEB
GND
SS MOTOR OFF Ⓛ
X2 PLAY Ⓛ
AUDIO MOD SEL
D. UNLOAD 1 Ⓗ
P-SW Ⓛ
DEW
FM Ⓛ
TEST Ⓛ
SYNC
SIRQ
CTL-P
SBT SERIAL CLOCK
SBO SERIAL DATA OUT
SBI SERIAL DATA IN
RST RESET Ⓛ
V REF
HEAD SW
REEL PULSE IN
S-PHOTO
T-PHOTO
KHJ3
INDEX Ⓛ
LP Ⓗ
SW X3
POS1
POS2
POS3
SRCH/M
CAMERA PS.
S-TAB
CAS SW2
VDD
OSC1
OSC2
ASCK
SCRV
SEARCH Ⓛ
A-DUB Ⓗ
LOAD V Ⓛ
LOAD Ⓗ
F-LOAD Ⓗ
LOAD RVS Ⓗ
SNS LED Ⓗ
A-MUTE
EE/VV
F-ADV Ⓗ
UNLOAD 2 Ⓗ
SPD FIX Ⓛ
C-EMPH Ⓗ
POWER-ON Ⓛ
TV/VTR
REC Ⓗ
D-REC Ⓛ
D-AREC Ⓛ
CO
CI
CAP RVS Ⓗ
CAP ON Ⓛ
CUE/REV Ⓗ
FF/REW Ⓗ
SS Ⓛ
CYL ON Ⓗ
CAS SW1
X6001 3.58MHz
QR6003 DTA124EA or UN1112
QR6001 DTC114EA or UN1211
REG 6V
NON SW 12V
REG 5V
D. UNLOAD 1 Ⓗ
SS MOTOR OFF Ⓛ
REG 12.3V
D.REC 12V
LP Ⓗ
HEAD SW
CTL PULSE
INDEX Ⓛ
F. LOAD Ⓜ ⊖
SENSOR LED
LED GND
F.LOAD Ⓜ ⊕
LOAD Ⓜ ⊖

⚠ Sicherheitsbauelement (muß durch Originalteil ersetzt werden)
Security component (must be replaced by original part)

Für Werte o
Read F (μF)

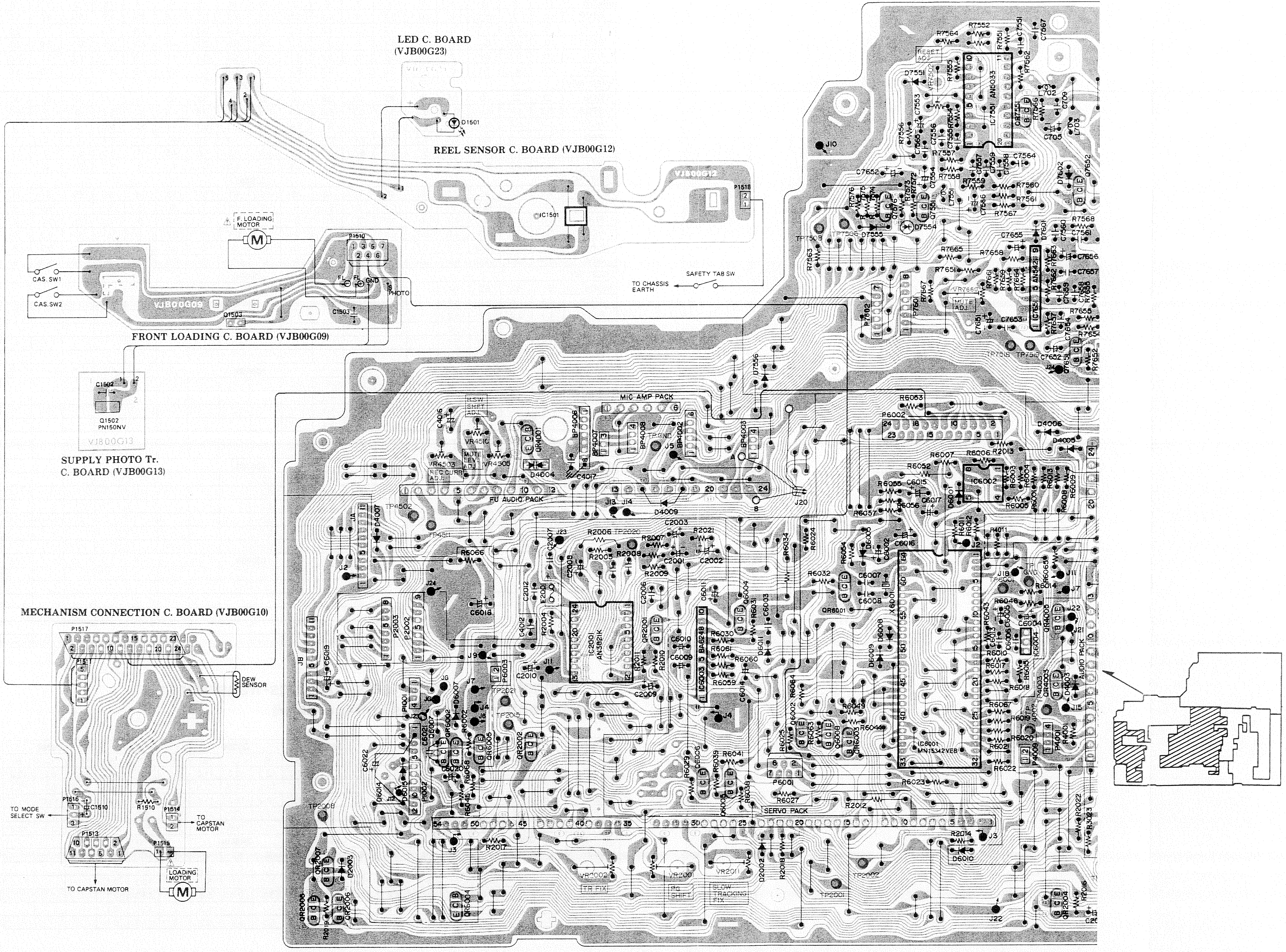
Schaltbild der Systemsteuerung
System Control Schematic Diagram



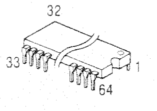
J8 (TO TIMER)
P7502-1 REG 6V
P7502-2 NON SW 12V
P7502-3 BACK UP
P7502-4 GND
P7502-5 CH SELECT VR
P7502-6 30V
P7502-7 VHF
P7502-8 UHF
P7502-9 AFC DEF
P7502-10 AUDIO DEF
P7502-11 SERIAL CLOCK
TO AUDIO
A.MODE SELECT
TO RF & CH SELECT
AUDIO DEF
AFC DEF
UHF
VHF
30V
CH SELECT VR
COM
COM
PCLA
DAC
RESET
JA (TO TIMER)
GND
SERIAL DATA
PCLA
RESET
DAC
COM
COM
AC 5V
AC 5V
REG-29V
P1001 (TO POWER)
REG-29V
AC5.1V
AC5.1V
GND
TO SERVO
FM ONLY
AC5.1V
AC5.1V
SP/LP SW
CASSETTE IN
X2 PLAY
SP/LP SW
TO LUMINANCE & CHROMINANCE
REG-29V
LP MUTE
P6002
S1
S2
S3
PHOTO +B
SNS LED
LED GND
REEL PULSE
SAFETY TAB
LOAD
LOAD
DEW
TO POWER
P6001
F. LOAD
F. LOAD
GND
CASSETTE SW2
CASSETTE SW1
SUPPLY PHOTO
TAKE-UP PHOTO
REEL SENSOR AMP
DEW SENSOR AMP
IC6002
AN6914
IC6001
MN15342VEB
IC6004
MN1280(R)
(RESET CIRCUIT)
POWER VOLTAGE DET.
OUTPUT CIRCUIT
IC6003 M54649L or BA6248 (LOADING/F.LOADING MOTOR DRIVE)
DRIVE CIRCUIT
CONTROL CIRCUIT
THERMAL BREAKER
GND
SS MOTOR OFF
X2 PLAY
AUDIO MOD SEL
D. UNLOAD 1
P-SW
DEW
FM
TEST
SYNC
SIRQ
CTL-P
SBT SERIAL CLOCK
SBO SERIAL DATA OUT
SBI SERIAL DATA IN
RST RESET
V REF
HEAD SW
REEL PULSE IN
S-PHOTO
T-PHOTO
KHJ3
INDEX
LP
SW X3
POS1
POS2
POS3
SRCH/M
CAMERA PS.
S-TAB
CAS SW2
VDD
OSC1
OSC2
ASCK
SCRV
SEARCH
A-DUB
LOAD V
LOAD
F-LOAD
LOAD RVS
SNS LED
A-MUTE
EE/VV
F-ADV
UNLOAD 2
SPD FIX
C-EMPH
POWER-ON
TV/VTR
REC
D-REC
D-AREC
CO
C1
CAP RVS
CAP ON
CUE/REV
FF/REW
SS
CYL ON
CAS SW1
3.58MHz
X6001
QR6003
DTA124EA
or UN1112
QR6001
DTC114EA
or UN1211
D6007 ERA15-01
Q6004
2SD636 (S)
or 2SD1458
(LED DRIVE)
QR6005
DTC114EA
or UN1211
(POWER OFF :ON)
QR6002
DTC124EA
or UN1212
Q6007
2SD1330
Q6006
2SB561
(Q.R.S)
(SAFETY TAB :ON)
Q6005
2SB561
(Q.R.S)
(DELAYED REC :ON)
Q6008
2SB641
Q6002
2SD636
(CASSETTE DETECT)
QR6004
DTA144EA
or UN1113
REG 6V
NON SW 12V
REG 5V
D. UNLOAD 1
SS MOTOR OFF
REG 12.3V
D.REC 12V
LP
HEAD SW
CTL PULSE
INDEX
F. LOAD
SENSOR LED
LED GND
F.LOAD
LOAD
P1002 (TO POWER)
GND
MOTOR GND
UNREG 45V
NON SW 12V
MOTOR UNREG
POWER OFF
REG 12.3V
REG 6V
V.REG 5V
S.REG 5V
TUNER 12V
TUNER OFF
TO RF & CH SELECT
UNREG 45V
REG 6V
TUNER 12V
TUNER OFF
TO AUDIO
A. MUTE
D. REC 12V
EX REC
EE
A.DUB
D.A.REC 12V
SEARCH
INDEX
P6003 (TO POWER)
GND
D.REC 12V
TO LUMINANCE & CHROMINANCE
EE
REG 5V
EX REC
SEARCH
NON SW 12V
REG 12.3V
TUNER 12V
TO SERVO
MOTOR UNREG
S.REG 5V
SPEED FIX
D. UNLOAD 1
EX REC
SS MOTOR OFF
NON SW 12V
MOTOR UNREG
F ADV
D. UNLOAD 2
REC
CO
C1
CAP RVS
CAP ON
CUE/REV
FF/REW
SS
CYL ON
REG 12.3V
D.REC 12V
MOTOR GND
LP
HEAD SW
CTL.PULSE

Für Werte ohne Bezeichnung F (µF) oder Ω einsetzen.
Read F (µF) or Ω, respectively unless otherwise noted.

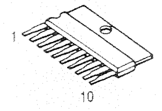
Hauptplatine (Systemsteuerungsteil)
Main Circuit Board (System Control Section)


LED C. BOARD (VJB00G23)
D1501
REEL SENSOR C. BOARD (VJB00G12)
IC1501
P1518
F. LOADING MOTOR
P1510
CAS. SW1
CAS. SW2
PHOTO
C1503
Q1503
FRONT LOADING C. BOARD (VJB00G09)
SAFETY TAB SW
TO CHASSIS EARTH
C1502
Q1502 PN150NV
SUPPLY PHOTO Tr. C. BOARD (VJB00G13)
MECHANISM CONNECTION C. BOARD (VJB00G10)
P1517
DEW SENSOR
TO MODE SELECT SW
P1516
C1510
R1510
P1514
TO CAPSTAN MOTOR
P1513
P1515
LOADING MOTOR
TO CAPSTAN MOTOR
MIC AMP PACK
FU AUDIO PACK
IC2001 AN3821K
IC6001 MN15342VEB
IC6002
IC7551 AN6033
IC7651 AN6426
SERVO PACK
VR2002 TR FIX
VR2001 PG SHIFT
VR2011 SLOW TRACKING FIX
RESET ADJ
MUTE ADJ
REC CURR ADJ
AUDIO PACK

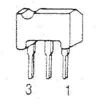
Halbleiter-Anschlußpunkte
Semi Conductor Connection



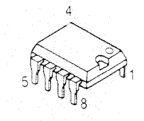
MN15342VEB



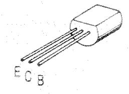
BA6248



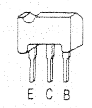
MN1280R



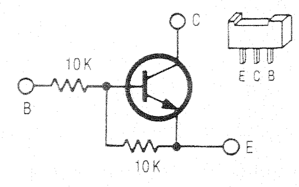
AN6914



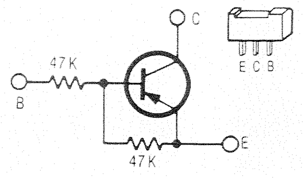
2SB561



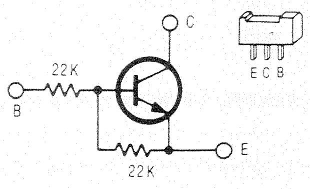
2SD636
2SB641
2SD638S
2SD1330


C
10K
B
10K
E
E C B

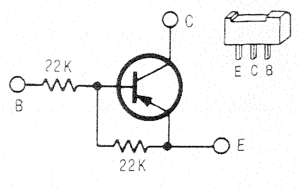
DTC114EA


C
47K
B
47K
E
E C B

DTA144EA


C
22K
B
22K
E
E C B

DTC124EA


C
22K
B
22K
E
E C B

DTA124EA

Spannungstabelle der Systemsteuerungs-IC's
System Control IC's Voltage Chart

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	5.1	0	0	5.2	0	4.8	5.2	3.9	5.4	0.1	4.8	4.9	4.9	5.4	3.0	5.0	0	3.3
PLAY	0	5.2	5.1	0	0	5.2	0	4.8	5.2	3.9	5.4	0.2	4.8	4.9	4.9	5.3	3.0	2.5	2.5	3.3
REC	0	5.2	5.1	0	0	5.1	0	0.1	5.2	3.9	5.3	2.7	4.8	4.9	4.8	5.3	3.0	2.5	2.5	3.3
F.F	0	0.1	5.1	0	0	5.2	0	4.7	5.2	3.9	5.4	0.1	4.8	4.9	4.9	5.3	3.0	5.0	2.7	3.3
REW	0	0.1	5.1	0	0	5.2	0	4.7	5.2	3.9	5.4	0.1	4.8	4.9	4.9	5.3	3.0	5.0	2.7	3.3

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	3.3	5.4	5.1	0.1	5.3	5.3	0.1	5.3	5.4	5.2	1.3	0.8	4.5	0	5.2	0	0	5.2	0	0
PLAY	3.3	5.4	5.1	0.1	5.3	5.3	5.3	0.1	5.4	5.2	1.3	0.8	4.5	5.2	5.2	0	0	0	0	0
REC	3.3	5.3	5.0	0.1	5.3	5.3	5.3	0.1	5.3	5.1	1.3	0.8	4.5	5.2	5.2	0	0	0	0	0
F.F	3.3	5.3	5.0	0.1	5.3	0.1	5.3	0.1	5.4	5.2	1.3	0.8	4.5	0	5.2	5.1	0	0	0	5.2
REW	3.3	5.3	5.0	0.1	5.3	0.1	5.3	0.1	5.4	5.1	1.3	0.8	4.5	0	5.1	5.1	0	0	5.1	5.1

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	12.3	12.3	0	0.5	0.1	0	5.2	0	0	0	0	0	0	0	0	5.0	0	5.1	5.2
PLAY	5.2	12.2	12.3	0.1	0	0.1	0	5.2	0	0	5.2	0	0.6	0	0	0	5.0	0	5.2	5.2
REC	5.2	0.2	0.3	4.2	0.7	0.1	0	5.2	0	0	0.1	0	0.6	0	0	0	5.0	0	5.2	5.2
F.F	5.2	12.3	12.3	0.2	0.7	0.1	0	5.2	0	0	0	0	0.6	0	0	0	5.0	0	5.2	5.2
REW	5.1	12.3	12.3	0.2	0.4	0.1	0	5.1	0	0	0	0	0.6	0	0	0	5.0	0	5.1	5.2

REF. NO.	IC6001																			
MODE	61	62	63	64																
STOP	4.8	2.0	2.2	5.2																
PLAY	4.8	2.0	2.2	5.2																
REC	4.8	2.0	2.2	5.2																
F.F	4.8	2.0	2.2	5.2																
REW	4.8	2.0	2.2	5.2																

REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8												
STOP	5.1	0.2	2.8	0	0	0.4	0	5.3												
PLAY	2.5	2.5	2.7	0	0	0.4	0	5.4												
REC	2.5	2.5	2.7	0	0	0.4	0	5.4												
F.F	2.7	2.4	2.7	0	0	0.4	0	5.3												
REW	2.8	2.3	2.7	0	0	0.4	0	5.4												

REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10										
STOP	0	0.2	0.2	0	0	0	12.3	5.6	16.1	0.2										
PLAY	0	0.2	0.2	0	0	0	12.3	5.6	14.4	0.2										
REC	0	0.2	0.2	0	0	0	12.2	5.6	14.4	0.2										
F.F	0	0.2	0.2	0	0	0	12.3	5.6	14.8	0.2										
REW	0	0.2	0.2	0	0	0	12.3	5.6	15.0	0.2										

REF. NO.	IC6004																			
MODE	1	2	3																	
STOP	5.3	5.3	0																	
PLAY	5.3	5.3	0																	
REC	5.3	5.3	0																	
F.F	5.3	5.3	0																	
REW	5.3	5.3	0																	

Spannungstabelle der Systemsteuerungs-Transistoren
System Control Transistors Voltage Chart

REF. NO.	Q6002			Q6004			Q6005			Q6006			Q6007			Q6008		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0.8	0.8	1.5	0.1	16.3	0.3	12.3	0	12.3	12.3	12.3	11.5	5.0	5.1	5.8	12.3	0.2	12.3
PLAY	0.8	0.8	1.5	1.1	14.5	1.2	12.3	0	12.3	12.3	12.3	11.5	5.0	5.1	5.8	12.3	0.3	12.3
REC	0.8	0.8	1.5	1.1	14.3	1.2	12.2	12.1	11.4	12.2	12.2	11.4	0	5.1	0	12.1	12.0	11.4
F.F	0.8	0.8	1.5	1.1	14.8	1.2	12.3	0	12.3	12.3	12.3	11.5	5.0	5.1	5.8	12.3	0.3	12.3
REW	0.8	0.8	1.5	1.1	14.7	1.2	12.3	0	12.3	12.3	12.3	11.5	5.0	5.1	5.8	12.3	0.3	12.3

REF. NO.	QR6001			QR6002			QR6003			QR6004			QR6005					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	0	0	5.0	0	5.8	0.1	5.0	5.0	0	5.1	0.8	5.3	0	13.3	0.1			
PLAY	0	0	5.0	0	5.8	0.1	5.1	0	5.2	5.1	0.7	5.3	0	13.3	0.1			
REC	0	0	5.0	0	0	4.2	5.1	5.0	0.1	5.1	0.7	5.3	0	13.3	0.1			
F.F	0	0	5.0	0	5.8	0.2	5.1	5.0	0	5.1	0.4	5.3	0	13.3	0.1			
REW	0	0	5.0	0	5.8	0.2	5.0	5.0	0	5.1	0.4	5.3	0	13.3	0.1			

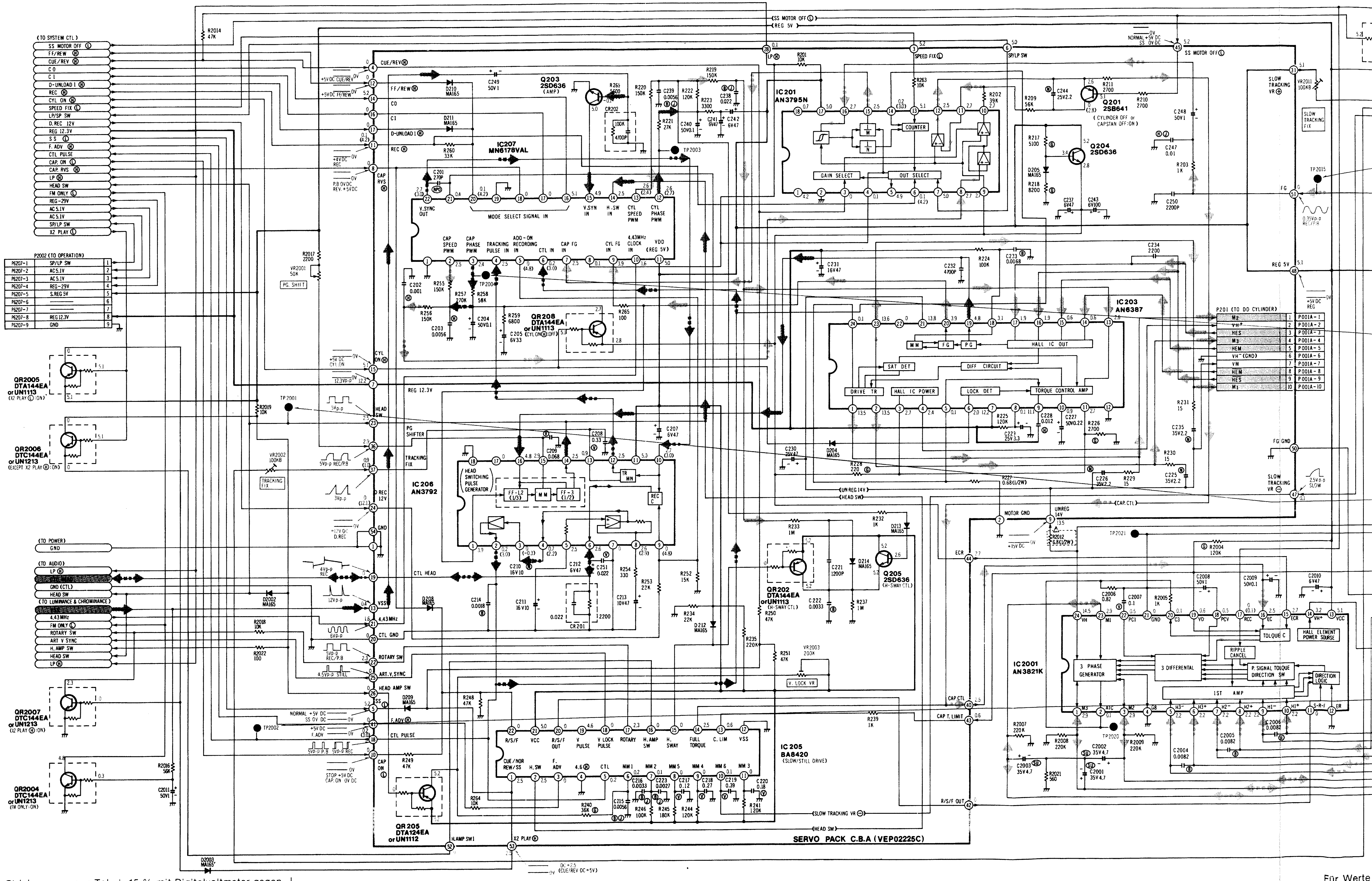
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen.

DC voltages tol. ± 15 % measured with digital voltmeter against ⊥.

Schaltbild des Servoteiles
Servo Schematic Diagram

Kopftrommel-Geschwindigkeitsregelung
Cylinder servo speed loop
Capstan-Geschwindigkeitsregelung
Capstan servo speed loop

Kopftrommel-Phasenregelung
Cylinder servo phase loop
Capstan-Phasenregelung
Capstan servo phase loop


(TO SYSTEM CTL)
SS MOTOR OFF
FF/REW
CUE/REV
CO
C1
D-UNLOAD 1
REC
CYL ON
SPEED FIX
LP/SP SW
D.REC 12V
REG 12.3V
F. ADV
CTL PULSE
CAP. ON
CAP. RVS
LP
HEAD SW
FM ONLY
REG-29V
AC5.1V
SP/LP SW
X2 PLAY
P2002 (TO OPERATION)
QR2005 DTA144EA or UN1113
QR2006 DTC144EA or UN1213
QR2007 DTC144EA or UN1213
QR2004 DTC144EA or UN1213
(TO POWER)
GND
(TO AUDIO)
(TO LUMINANCE & CHROMINANCE)
4.43MHz
FM ONLY
ROTARY SW
ART V SYNC
H. AMP SW
HEAD SW
IC207 MN6178VAL
Q203 2SD636
IC201 AN3795N
Q201 2SB641
Q204 2SD636
IC203 AN6387
QR208 DTA144EA or UN1113
IC206 AN3792
QR202 DTA144EA or UN1113
Q205 2SD636
IC205 BA8420 (SLOW/STILL DRIVE)
QR205 DTA124EA or UN1112
IC2001 AN3821K
P201 (TO DD CYLINDER)
SLOW TRACKING VR
SERVO PACK C.B.A (VEP02225C)

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

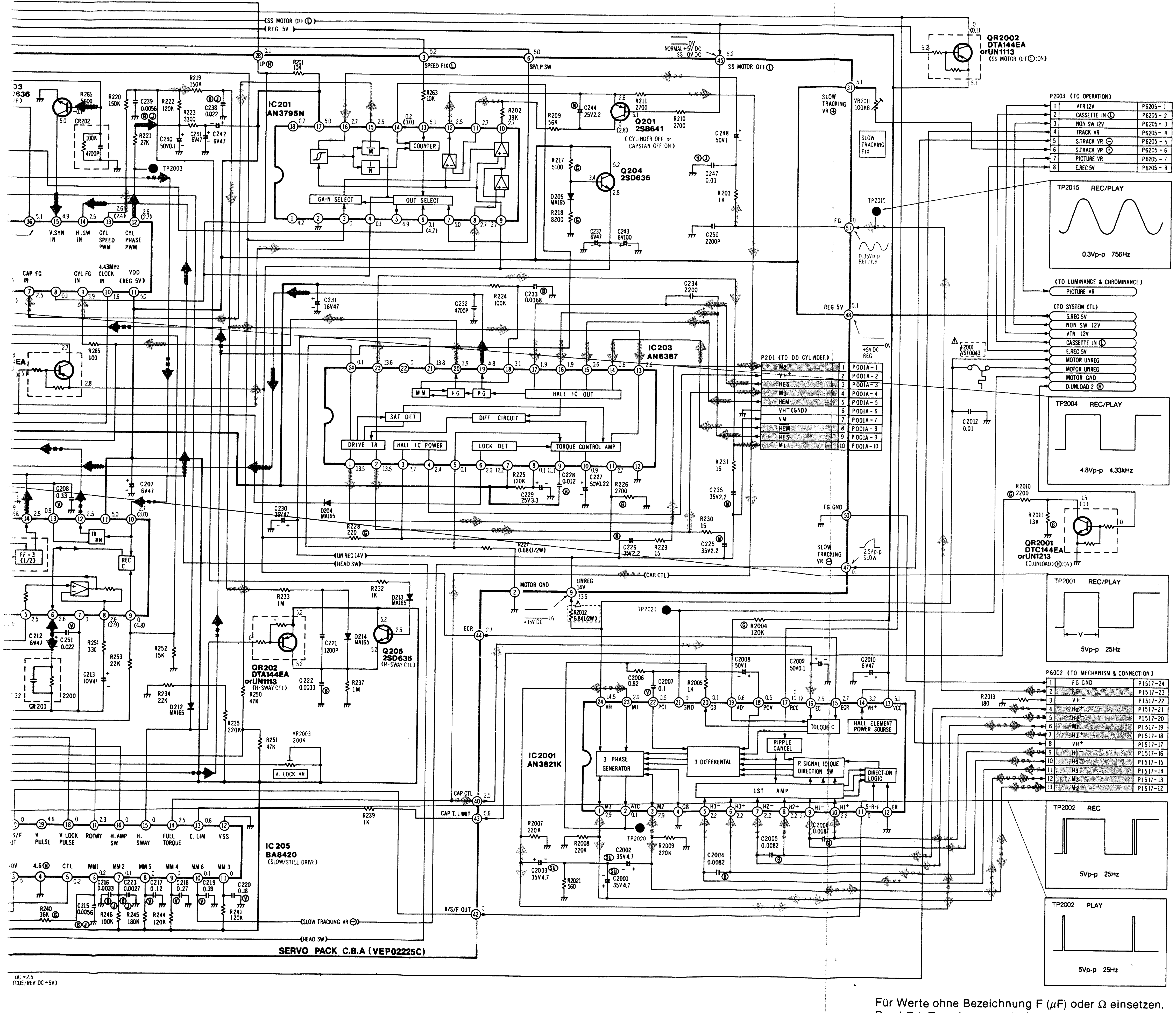
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

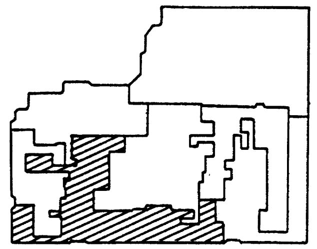
Für Werte
Read F (µF

Schaltbild des Servoteiles
Servo Schematic Diagram

Kopftrommel-Geschwindigkeitsregelung
Cylinder servo speed loop
Capstan-Geschwindigkeitsregelung
Capstan servo speed loop

Kopftrommel-Phasenregelung
Cylinder servo phase loop
Capstan-Phasenregelung
Capstan servo phase loop


IC201 AN3795N
GAIN SELECT
OUT SELECT
COUNTER
IC203 AN6387
HALL IC OUT
SAT DET
DIFF CIRCUIT
DRIVE TR
HALL IC POWER
LOCK DET
TORQUE CONTROL AMP
Q201 2SB641
Q204 2SD636
QR2002 DTA144EA orUN1113
QR2001 DTC144EA orUN1213
QR202 DTA144EA orUN1113
Q205 2SD636
IC205 BA6420 (SLOW/STILL DRIVE)
IC2001 AN3821K
3 PHASE GENERATOR
3 DIFFERENTAL
RIPPLE CANCEL
P. SIGNAL TOLQUE DIRECTION SW
DIRECTION LOGIC
TOLQUE C
HALL ELEMENT POWER SOURSE
1ST AMP
V. LOCK VR
SLOW TRACKING FIX
SERVO PACK C.B.A (VEP02225C)
P2003 (TO OPERATION)
P201 (TO DD CYLINDER)
P6002 (TO MECHANISM & CONNECTION)
(TO LUMINANCE & CHROMINANCE)
(TO SYSTEM CTL)
TP2015 REC/PLAY 0.3Vp-p 756Hz
TP2004 REC/PLAY 4.8Vp-p 4.33kHz
TP2001 REC/PLAY 5Vp-p 25Hz
TP2002 REC 5Vp-p 25Hz
TP2002 PLAY 5Vp-p 25Hz

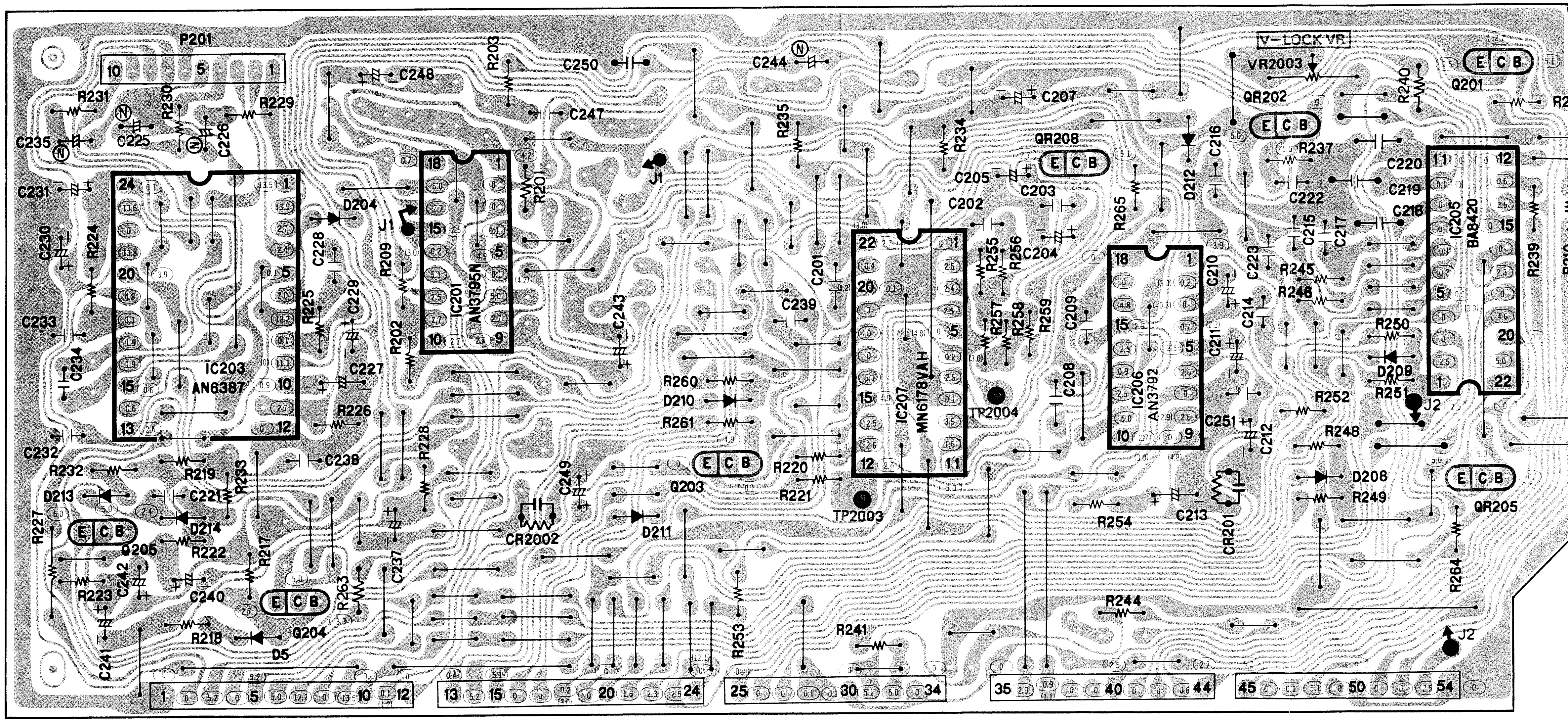


Hauptplatine
Main Circuit Board

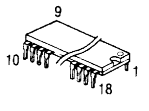
Servoteil
Servo Section

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

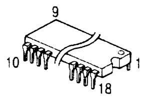
Servo-Zusatzplatine
Servo Pack Circuit Board


P201
10
5
1
R231
R230
R229
C235
C225
C226
C231
C230
R224
C233
C234
C232
IC203
AN6387
24
20
15
13
12
10
5
1
C248
R203
C250
C247
C244
R235
R234
C207
QR208
C205
C203
C202
C204
R255
R256
R257
R258
R259
C209
C208
C201
C239
IC207
MN6178VAH
22
20
15
12
11
TP2004
TP2003
R265
D212
C216
IC206
AN3792
18
10
9
C210
C211
C214
C223
C251
C212
CR201
C213
R254
R244
V-LOCK VR
VR2003
QR202
R237
C222
C215
C217
R245
R246
R250
D209
R251
R252
R248
D208
R249
QR205
R264
J2
R240
Q201
R211
C220
C219
C218
IC205
BA8420
R239
R210
D204
J1
IC201
AN3795N
R201
R209
C228
C229
R225
R202
C227
R226
C243
R260
D210
R261
Q203
R220
R221
D211
C249
CR2002
C238
R228
R232
R219
R233
D213
C221
D214
Q205
R222
R217
R227
R223
C242
C240
R218
D5
Q204
R263
C237
C241
R253
R241
E C B
25
30
34
35
40
44
45
50
54

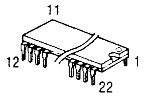
Halbleiter-Anschlußpunkte
Semi Conductor Connection



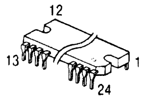
AN3792



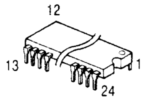
AN3795N



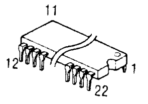
BA8420



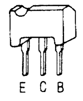
AN3821K



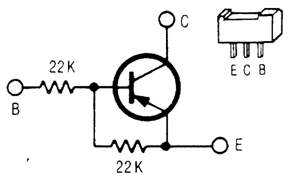
AN6387



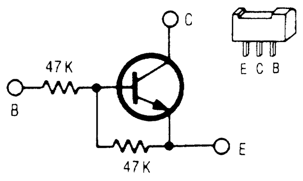
MN6178VAL



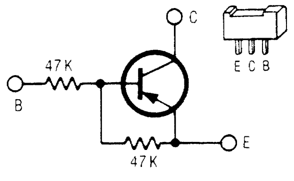
2SD636
2SB641


C
E C B
22K
B
22K
E

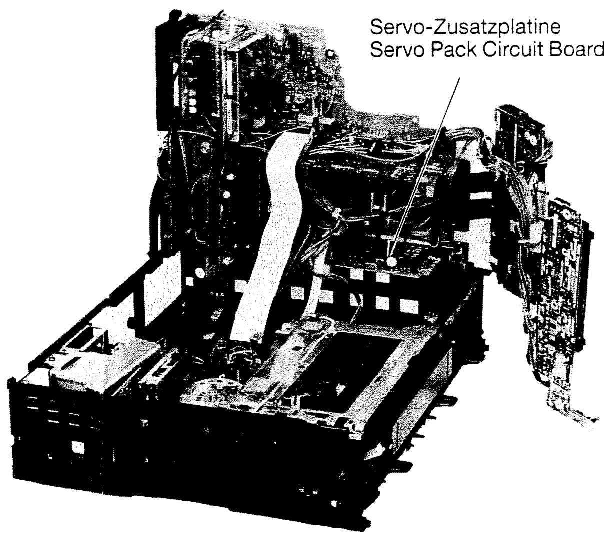
DTA124EA


C
E C B
47K
B
47K
E

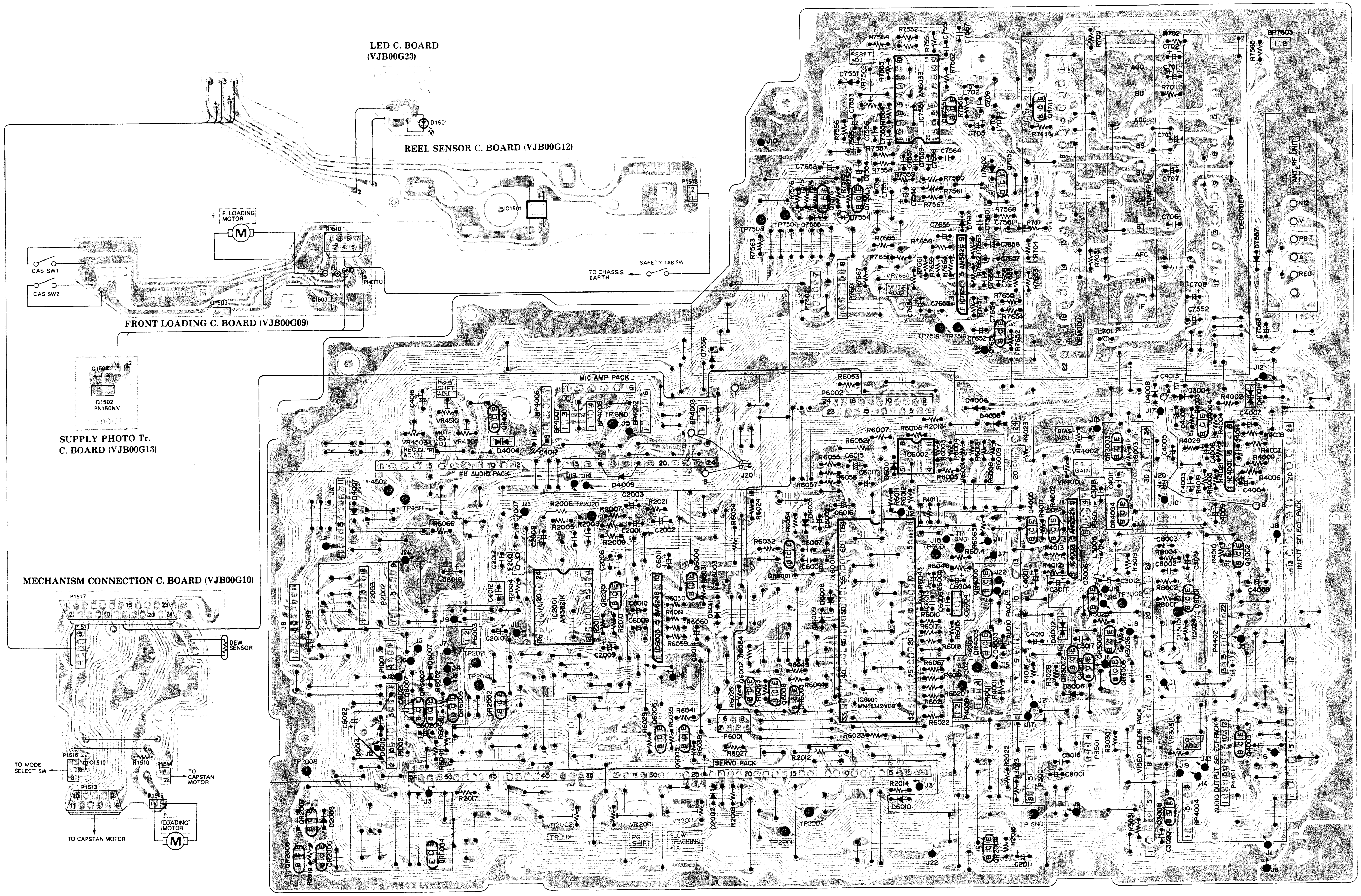
DTC144EA


C
E C B
47K
B
47K
E

DTA144EA

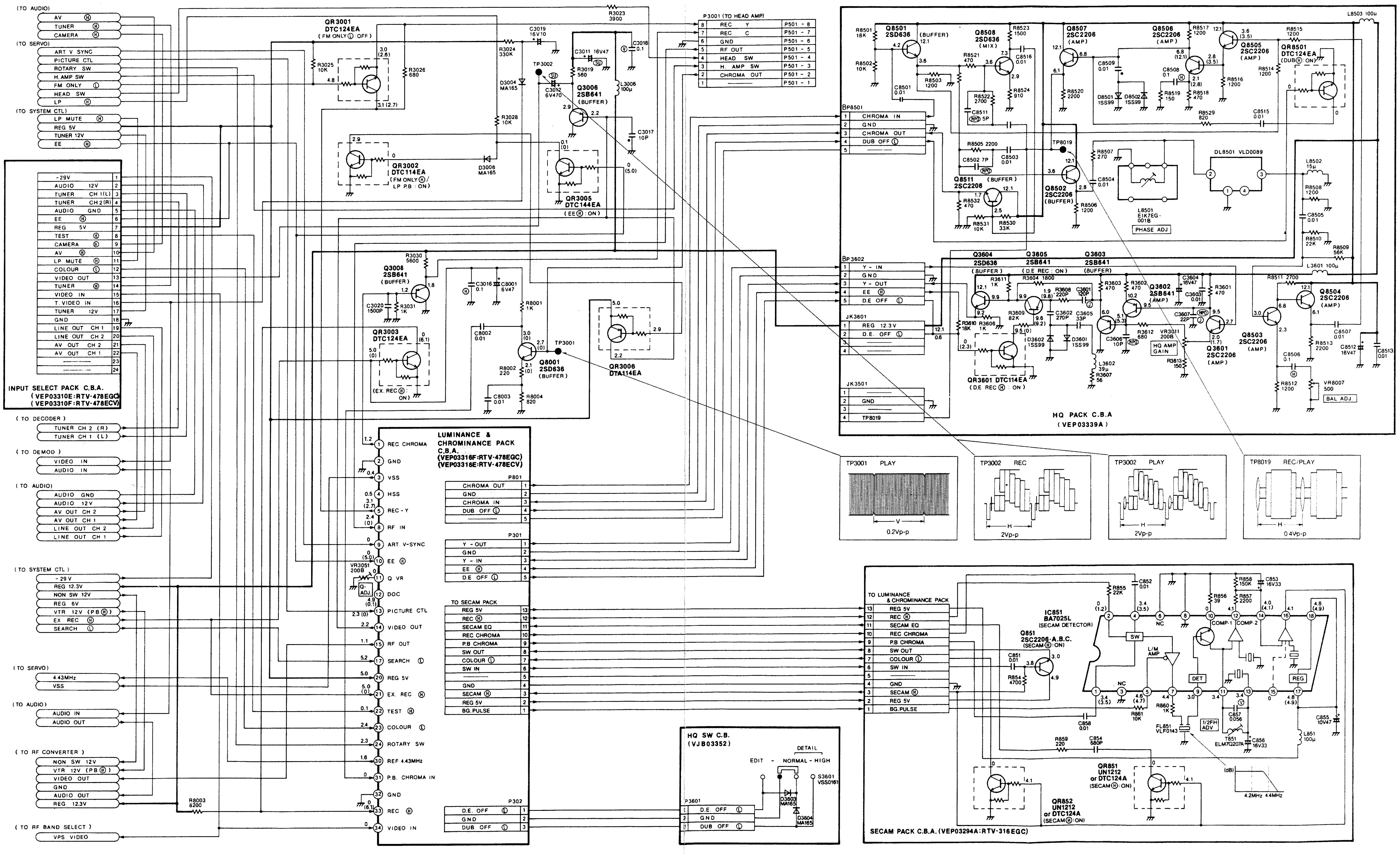

Servo-Zusatzplatine
Servo Pack Circuit Board

Hauptplatine
Main Circuit Board


LED C. BOARD
(VJB00G23)
D1501
REEL SENSOR C. BOARD (VJB00G12)
IC1501
P1518
F. LOADING MOTOR
P1510
CAS. SW1
CAS. SW2
Q1503
C1503
PHOTO
SAFETY TAB SW
TO CHASSIS EARTH
FRONT LOADING C. BOARD (VJB00G09)
C1502
Q1502
PN150NV
SUPPLY PHOTO Tr. C. BOARD (VJB00G13)
MECHANISM CONNECTION C. BOARD (VJB00G10)
P1517
DEW SENSOR
TO MODE SELECT SW
P1516
C1510
R1510
P1514
TO CAPSTAN MOTOR
P1513
P1515
LOADING MOTOR
TO CAPSTAN MOTOR
RESET ADJ.
AN5033
IC7551
IC7651
AN5425
MUTE ADJ.
TUNER
DECORDER
DEMODU
ANT RF UNIT
AGC
BU
BS
BV
BT
AFC
BM
IF
NI2
V
PB
A
REG
BP7603
MIC AMP PACK
HSW SHIFT ADJ.
MUTE LEV. ADJ.
REC CURR. ADJ.
FU AUDIO PACK
P6002
IC6002
IC6001
MN15342VEB
IC2001
AN3821K
IC6003
BA6218
IC4001
IC3001
AN3224K
BIAS ADJ.
PB GAIN
VR4001
VR4002
IN PUT SELECT PACK
VIDEO COLOR PACK
AUDIO OUTPUT SELECT PACK
AUDIO PACK
SERVO PACK
P6001
VR2002
TR FIX
VR2001
FG SHIFT
VR2011
SLOW TRACKING
TP GND
TP2001
TP2002
TP2008
P4402
BP4004
P3001
P3501

⚠ Sicherheitsbauelement (muß durch Originalteil ersetzt werden)
Security component (must be replaced by original part)

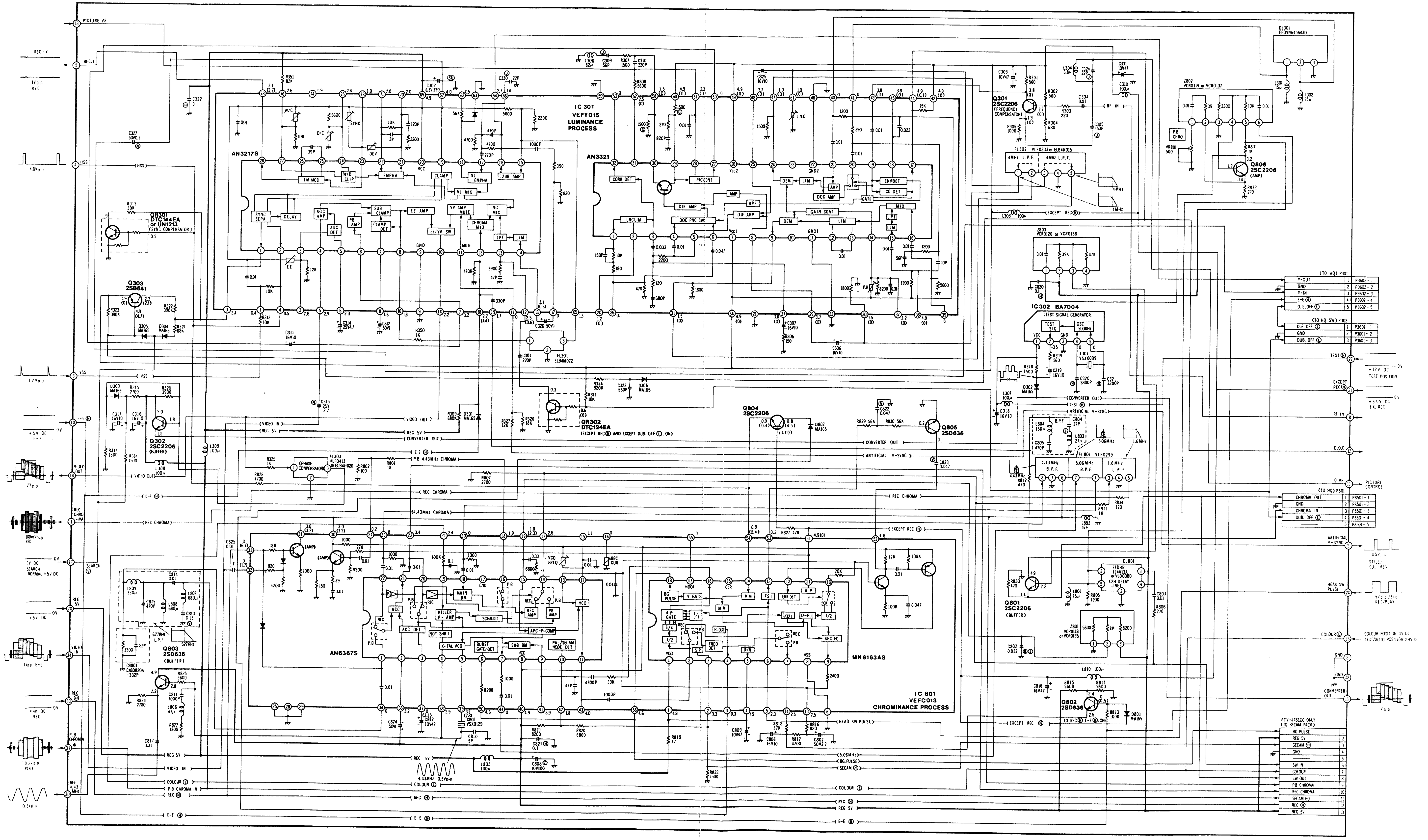
Schaltbild Luminanzteil und Farbteil
Luminance and Chrominance Schematic Diagram


(TO AUDIO)
(TO SERVO)
(TO SYSTEM CTL)
INPUT SELECT PACK C.B.A.
(VEP03310E:RTV-478EGC)
(VEP03310F:RTV-478ECV)
(TO DECODER)
(TO DEMOD)
(TO RF CONVERTER)
(TO RF BAND SELECT)
QR3001 DTC124EA
QR3002 DTC114EA
QR3003 DTC124EA
QR3005 DTC144EA
QR3006 DTA114EA
Q3006 2SB641 (BUFFER)
Q3008 2SB641 (BUFFER)
Q8001 2SD636 (BUFFER)
TP3001
TP3002
P3001 (TO HEAD AMP)
LUMINANCE & CHROMINANCE PACK C.B.A.
(VEP03316F:RTV-478EGC)
(VEP03316E:RTV-478ECV)
P801
P301
P302
TO SECAM PACK
HQ PACK C.B.A
(VEP03339A)
Q8501 2SD636 (BUFFER)
Q8508 2SD636 (MIX)
Q8507 2SC2206 (AMP)
Q8506 2SC2206 (AMP)
Q8505 2SC2206 (AMP)
QR8501 DTC124EA
Q8511 2SC2206 (BUFFER)
Q8502 2SC2206 (BUFFER)
DL8501 VLD0089
L8501 EIK7EG-001B
PHASE ADJ
TP8019
Q3604 2SD636 (BUFFER)
Q3605 2SB641 (D.E REC: ON)
Q3603 2SB641 (BUFFER)
Q3602 2SB641 (AMP)
Q3601 2SC2206 (AMP)
QR3601 DTC114EA
HQ AMP GAIN
Q8504 2SC2206 (AMP)
Q8503 2SC2206 (AMP)
BAL ADJ
TP3001 PLAY 0.2Vp-p
TP3002 REC 2Vp-p
TP3002 PLAY 2Vp-p
TP8019 REC/PLAY 0.4Vp-p
HQ SW C.B. (VJB03352)
DETAIL
EDIT - NORMAL - HIGH
S3601 VSS0161
SECAM PACK C.B.A. (VEP03294A:RTV-316EGC)
IC851 BA7025L (SECAM DETECTOR)
Q851 2SC2206-A.B.C. (SECAM Ⓗ:ON)
QR851 UN1212 or DTC124A
QR852 UN1212 or DTC124A
FL851 VLF0143
T851 ELM7Q207A
4.2MHz 4.4MHz

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

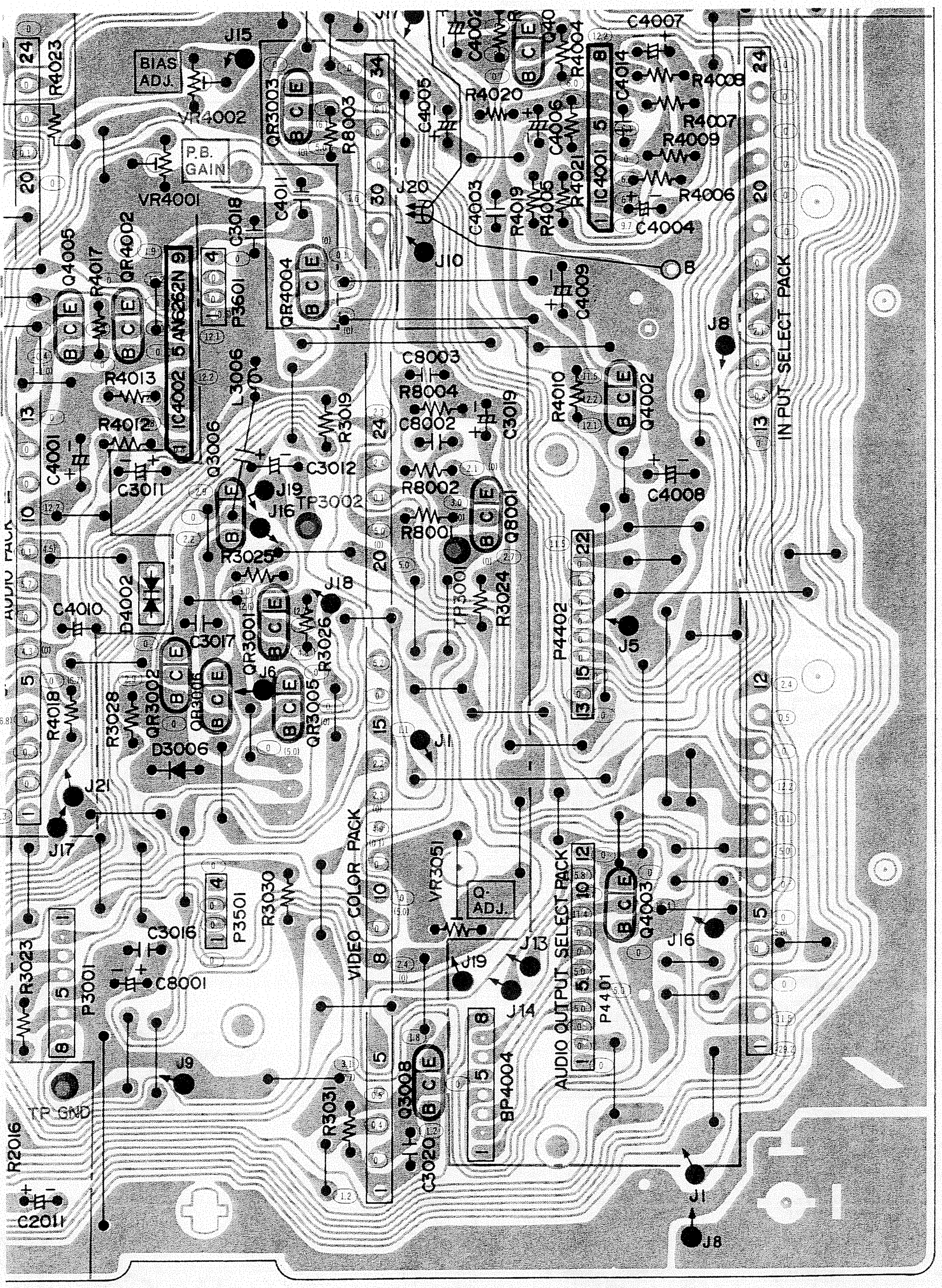
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

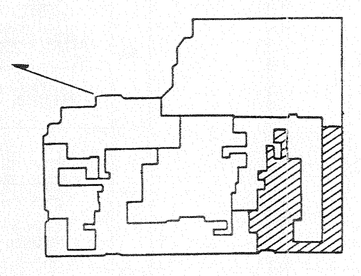
Schaltbild der Luminanz- und Farbplatine
Luminance and Chrominance Pack Schematic Diagram


IC 301
VEFY015
LUMINANCE PROCESS
AN3217S
AN3321
IC 801
VEFC013
CHROMINANCE PROCESS
AN6367S
MN6163AS
IC 302 BA7004
Q301 2SC2206 (FREQUENCY COMPENSATOR)
Q302 2SC2206 (BUFFER)
Q303 2SB641
QR301 DTC144EA or UN1213 (SYNC COMPENSATOR)
QR302 DTC124EA
Q801 2SC2206 (BUFFER)
Q802 2SD636
Q803 2SD636 (BUFFER)
Q804 2SC2206
Q805 2SD636
Q808 2SC2206 (AMP)
DL301
DL801
PICTURE VR
REC.Y
HSS
VSS
VIDEO OUT
REC CHROMA
SEARCH
REC 5V
VIDEO IN
P.B CHROMA IN
REF 4.43 MHz
TEST
EXCEPT REC
RF IN
D.O.C
PICTURE CONTROL
ARTIFICIAL V-SYNC
HEAD SW PULSE
COLOUR
GND
CONVERTER OUT

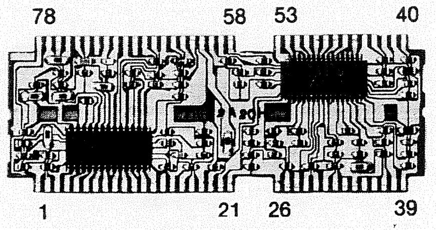
Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

Hauptplatine (Luminanzteil und Farbteil)
Main Circuit Board (Luminance and Chrominance Section)

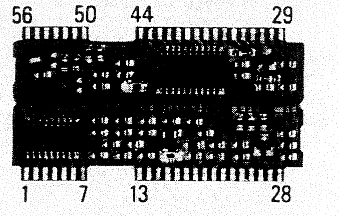

BIAS ADJ.
VR4002
P.B. GAIN
VR4001
IC4001
IC4002
IC3001
VR3051
Q-ADJ.
TP GND
TP3002
VIDEO COLOR PACK
AUDIO OUTPUT SELECT PACK
IN PUT SELECT PACK
AUDIO PACK
P3001
P3501
P4401
P4402
BP4004



Halbleiter-Anschlußpunkte
Semi Conductor Connection

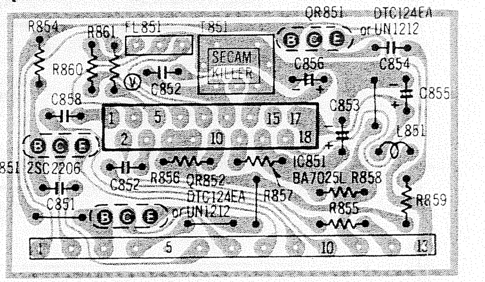

78
58
53
40
1
21
26
39

VEFY015

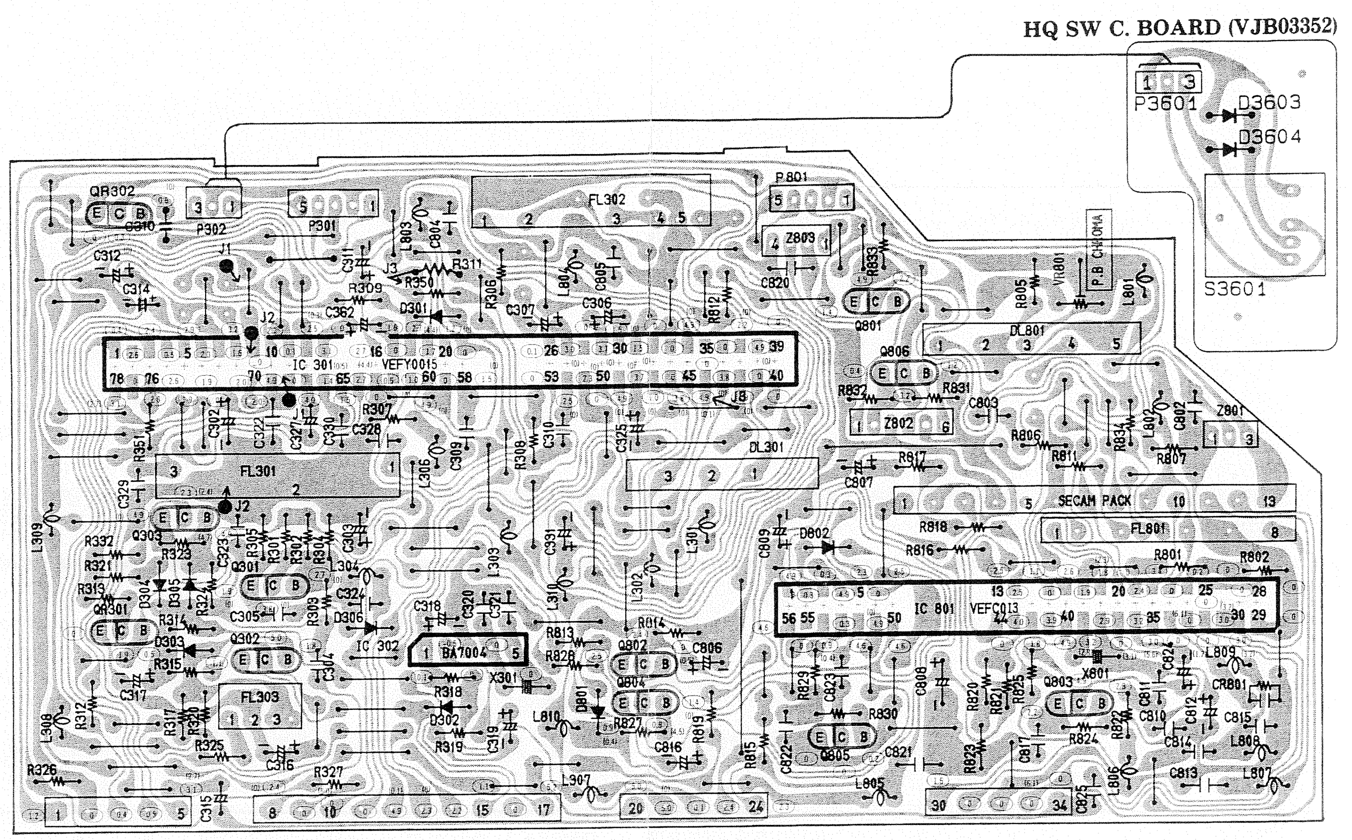

56
50
44
29
1
7
13
28

VEFC013

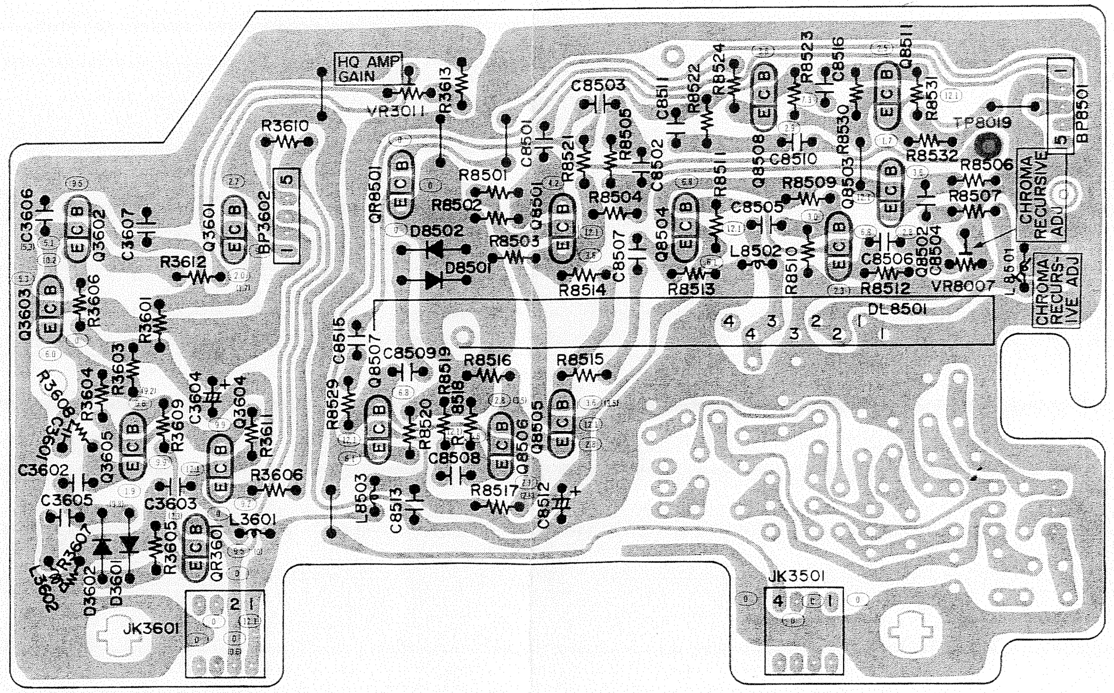
Secam-Zusatzplatine
Secam Pack Circuit Board
(RTV-478 EGC)


QR851 DTC124EA or UN1212
Q851 2SC2206
QR852 DTC124EA or UN1212
IC851 BA7025L
SECAM KILLER

Luminanz- und Farbplatine
Luminance- and Chrominance Pack Circuit Board

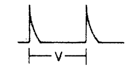
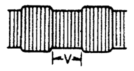
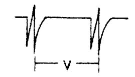
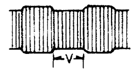
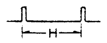
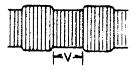
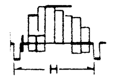
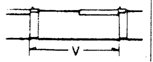
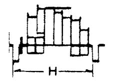
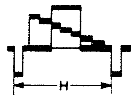
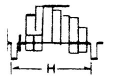
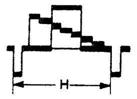
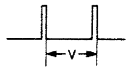
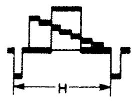
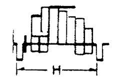
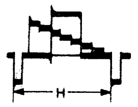
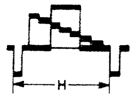
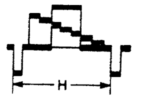
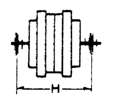
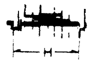
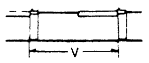
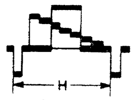
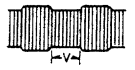
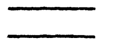

HQ SW C. BOARD (VJB03352)
P3601
D3603
D3604
S3601
IC 301 VEFY0015
IC 302 BA7004
IC 801 VEFC013
FL301
FL302
FL303
FL801
DL301
DL801
SECAM PACK
P.B CHROMA
VR801

HQ Zusatzplatine
HQ Pack Circuit Board

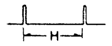
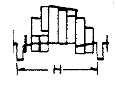
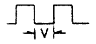
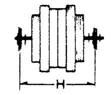
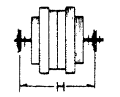
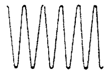
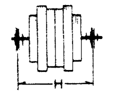
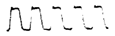
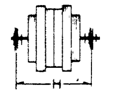
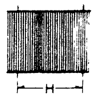
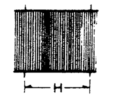
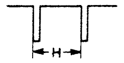
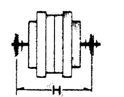
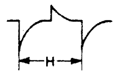
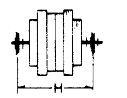
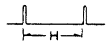
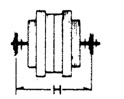
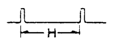
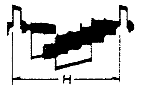
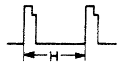
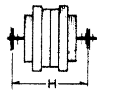
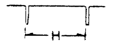

HQ AMP GAIN
VR3011
TP8019
CHROMA RECURSIVE ADJ
CHROMA RECURSIVE ADJ
VR8007
DL8501
JK3501
JK3601
BP8501
BP3602

Oszillogramme der IC's 301 und 801
Signal Waveforms of the IC's 301 and 801

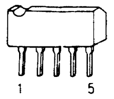
IC301 (VEFY015)

PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
1	 2.5Vp-p (REC/P.B)	40	 0.1V p-p (P.B)
3	 0.8Vp-p (REC/P.B)	41	 0.4V p-p (P.B)
4	 5.0Vp-p (REC/P.B)	43	 0.7V p-p (P.B)
5	 1.0Vp-p (REC/P.B)	47	 0.6V p-p (P.B)
7	 0.3Vp-p (P.B)	50	 0.2V p-p (P.B)
10	 2.2Vp-p (REC/P.B)	64	 1.2V p-p (REC/P.B)
11	 2.7V p-p (PAUSE/ STILL)	65	 0.3V p-p (REC/P.B)
16	 0.6V p-p (REC)	66	 0.6V p-p (REC/P.B)
16	 0.6V p-p (P.B)	67	 1.2V p-p (REC/P.B)
18, 19	 0.5V p-p (P.B)	70	 0.8V p-p (REC)
31	 0.7V p-p (P.B)	71	 0.3V p-p (REC)
39	 0.25V p-p (P.B)	78	 1.0V p-p (REC)

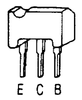
IC801 (VEFC013)

PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
3	 5.0V p-p (REC/P.B)	32	 1.0V p-p (REC/P.B)
5	 5.0V p-p (REC/P.B)	34	 0.3V p-p (P.B)
16	 0.2V p-p (REC)	38	 0.6V p-p (REC/P.B)
17	 1.2V p-p (REC) 1.0V p-p (P.B)	39	 0.7V p-p (REC/P.B)
18	 0.6V p-p (REC) 1.5V p-p (P.B)	44	 0.35V p-p (REC/P.B)
20	 0.2V p-p (REC/P.B)	50	 5V p-p (REC/P.B)
22	 0.6V p-p (REC) 0.5V p-p (P.B)	52	 0.8V p-p (P.B)
23	 0.25V p-p (REC) 0.6V p-p (P.B)	53	 5.0V p-p (REC/P.B)
24	 150mV p-p (P.B)	54	 5.0V p-p (REC)
30, 31	 1.1V p-p (REC)	54	 4.5V p-p (P.B)
30, 31	 1.0V p-p (P.B)	56	 5.0Vp-p (REC/P.B)

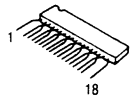
Halbleiter-Anschlußpunkte
Semi Conductor Connection



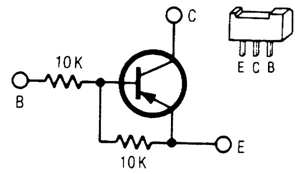
BA7004



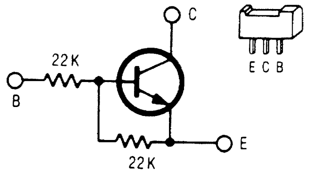
2SD636
2SB641
2SC2206



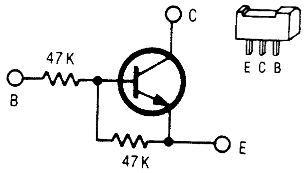
BA7025L


C
10K
B
10K
E
E C B

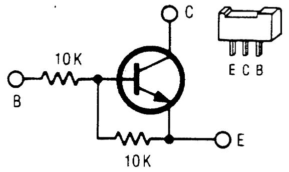
DTA114EA


C
22K
B
22K
E
E C B

DTC124EA

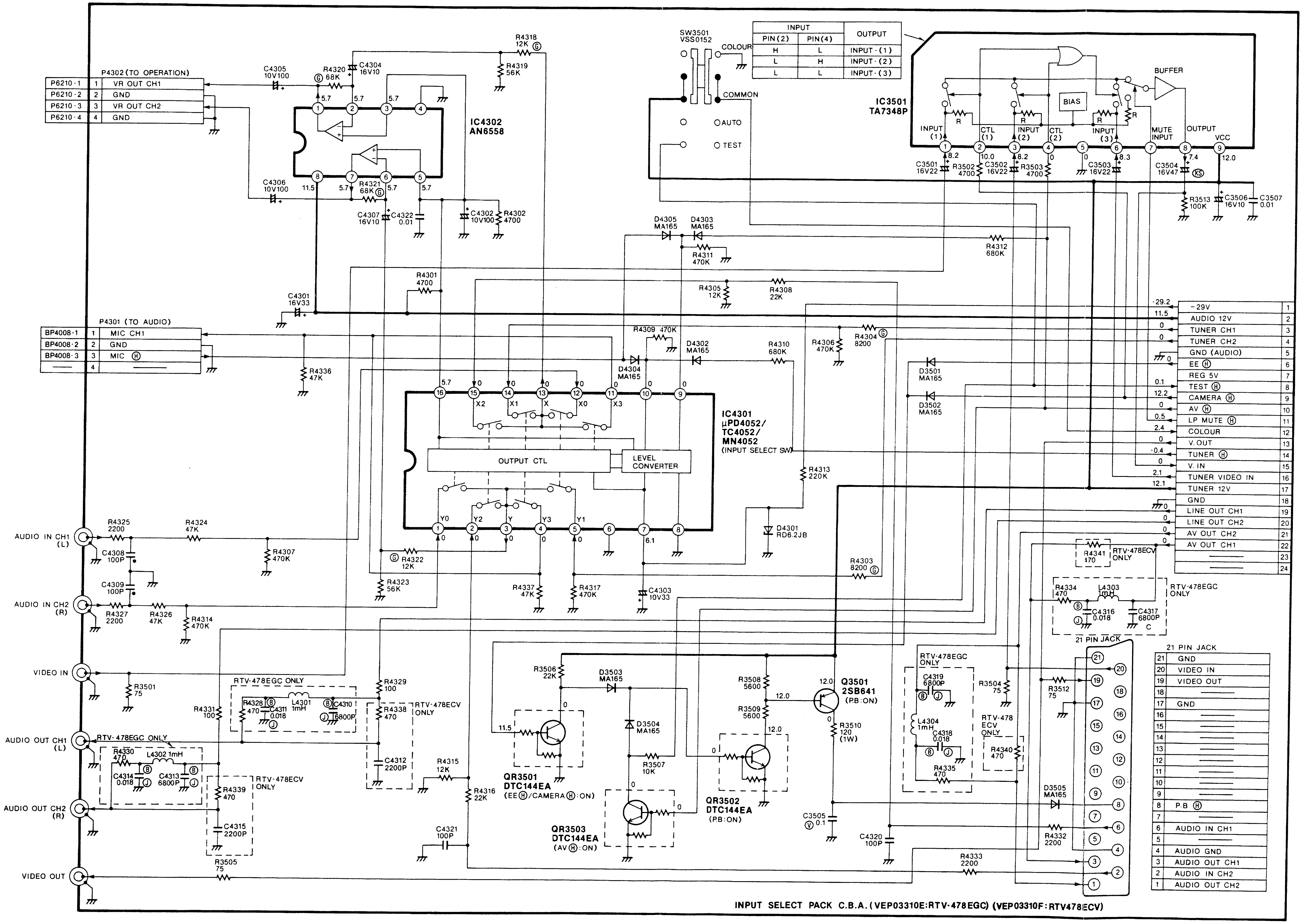

C
47K
B
47K
E
E C B

DTC144EA


C
10K
B
10K
E
E C B

DTC114EA

Schaltbild der Signalwahl-Zusatzplatine
Input Select Pack Schematic Diagram

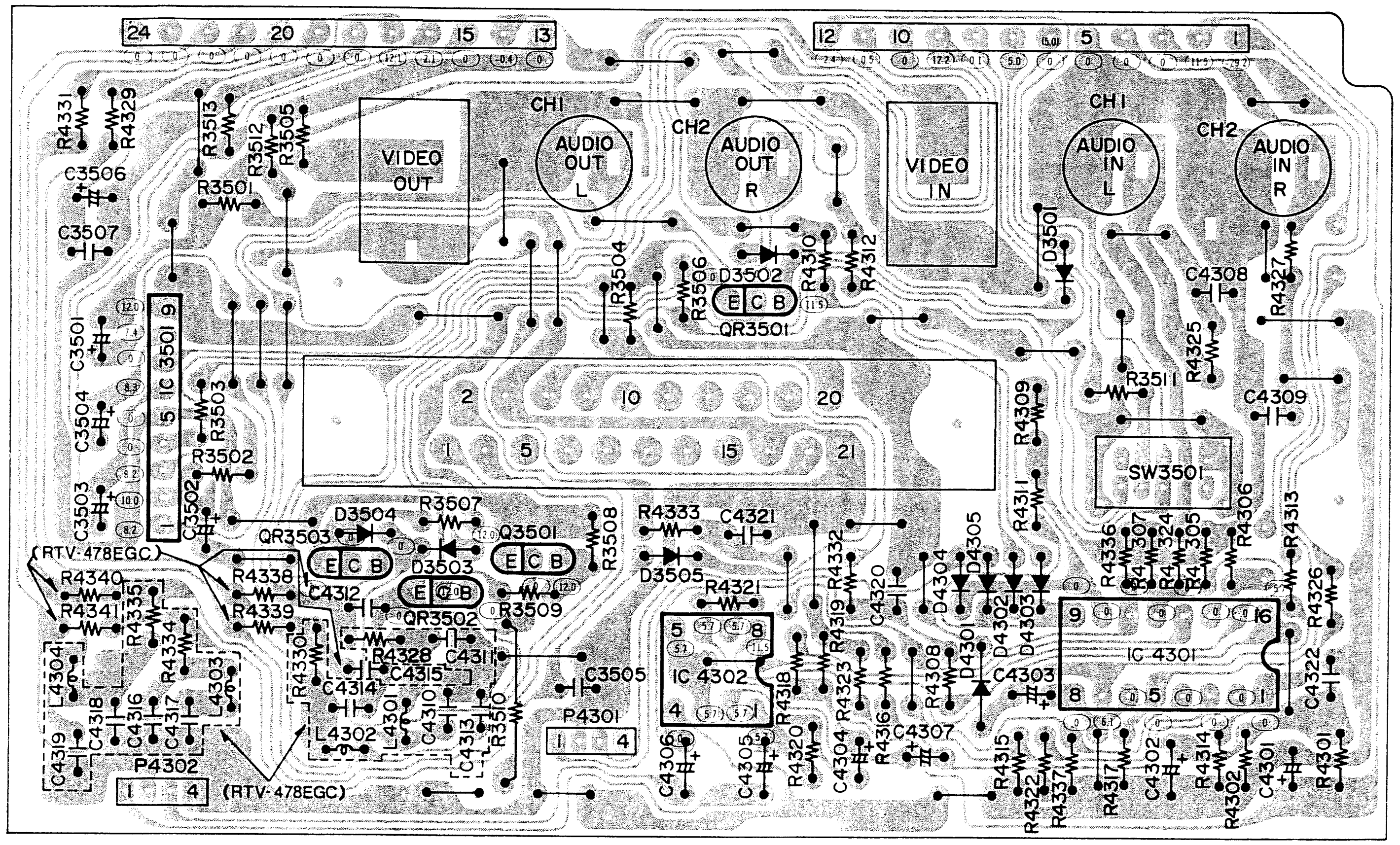

P4302 (TO OPERATION)
P6210·1 | 1 | VR OUT CH1
P6210·2 | 2 | GND
P6210·3 | 3 | VR OUT CH2
P6210·4 | 4 | GND
P4301 (TO AUDIO)
BP4008·1 | 1 | MIC CH1
BP4008·2 | 2 | GND
BP4008·3 | 3 | MIC Ⓗ
4
IC4302
AN6558
IC4301
μPD4052/
TC4052/
MN4052
(INPUT SELECT SW)
OUTPUT CTL
LEVEL CONVERTER
IC3501
TA7348P
BUFFER
BIAS
INPUT (1)
CTL (1)
INPUT (2)
CTL (2)
INPUT (3)
MUTE INPUT
OUTPUT
VCC
SW3501
VSS0152
COLOUR
COMMON
AUTO
TEST
INPUT | | OUTPUT
PIN(2) | PIN(4) |
H | L | INPUT·(1)
L | H | INPUT·(2)
L | L | INPUT·(3)
AUDIO IN CH1 (L)
AUDIO IN CH2 (R)
VIDEO IN
AUDIO OUT CH1 (L)
AUDIO OUT CH2 (R)
VIDEO OUT
RTV·478EGC ONLY
RTV·478ECV ONLY
Q3501
2SB641
(PB:ON)
QR3501
DTC144EA
(EEⒽ/CAMERAⒽ:ON)
QR3502
DTC144EA
(PB:ON)
QR3503
DTC144EA
(AVⒽ:ON)
21 PIN JACK
-29.2 | −29V | 1
11.5 | AUDIO 12V | 2
0 | TUNER CH1 | 3
0 | TUNER CH2 | 4
| GND (AUDIO) | 5
0 | EE Ⓗ | 6
| REG 5V | 7
0.1 | TEST Ⓗ | 8
12.2 | CAMERA Ⓗ | 9
0 | AV Ⓗ | 10
0.5 | LP MUTE Ⓗ | 11
2.4 | COLOUR | 12
0 | V.OUT | 13
-0.4 | TUNER Ⓗ | 14
0 | V.IN | 15
2.1 | TUNER VIDEO IN | 16
12.1 | TUNER 12V | 17
0 | GND | 18
0 | LINE OUT CH1 | 19
0 | LINE OUT CH2 | 20
0 | AV OUT CH2 | 21
0 | AV OUT CH1 | 22
| —— | 23
| —— | 24
21 PIN JACK
21 | GND
20 | VIDEO IN
19 | VIDEO OUT
18 | ——
17 | GND
16 | ——
15 | ——
14 | ——
13 | ——
12 | ——
11 | ——
10 | ——
9 | ——
8 | P.B Ⓗ
7 | ——
6 | AUDIO IN CH1
5 | ——
4 | AUDIO GND
3 | AUDIO OUT CH1
2 | AUDIO IN CH2
1 | AUDIO OUT CH2
INPUT SELECT PACK C.B.A. (VEP03310E:RTV-478EGC) (VEP03310F:RTV478ECV)

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

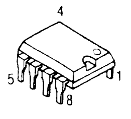
Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

Signalwahl-Zusatzplatine
Input Select Pack Circuit Board

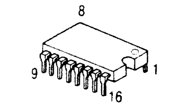


24
20
15
13
12
10
5
1
VIDEO OUT
CH1
AUDIO OUT L
CH2
AUDIO OUT R
VIDEO IN
CH1
AUDIO IN L
CH2
AUDIO IN R
R4331
R4329
R3513
R3512
R3505
C3506
R3501
C3507
D3502
QR3501
R3504
R3506
R4310
R4312
D3501
C4308
R4327
R4325
R3511
C4309
C3501
IC3501
C3504
R3503
R3502
C3503
C3502
R3507
D3504
QR3503
Q3501
D3503
R3508
R4333
C4321
D3505
R4321
R4332
C4320
D4304
D4305
D4302
D4303
R4309
R4311
SW3501
R4336
R4307
R4324
R4305
R4306
R4313
R4326
IC 4301
C4322
IC 4302
RTV-478EGC
R4340
R4341
R4335
R4334
L4304
L4303
R4338
R4339
C4312
QR3502
R3509
R4330
R4328
C4311
C3505
P4301
C4314
C4315
C4318
C4316
C4317
C4319
P4302
L4302
L4301
C4310
C4313
R3510
C4306
C4305
R4320
C4304
R4323
R4316
R4318
R4319
R4308
D4301
C4303
C4307
R4315
R4322
R4337
R4317
C4302
R4314
R4302
C4301
R4301
E C B

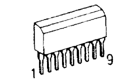
Halbleiter-Anschlußpunkte
Semi Conductor Connection



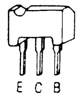
AN6558



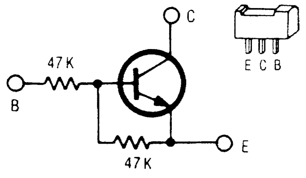
µPD4052



TA7348P

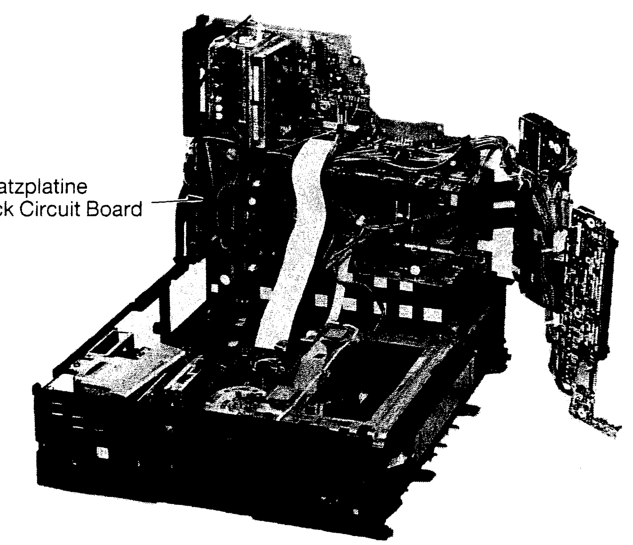


2SB641



C
47 K
B
47 K
E
E C B

DTC144EA

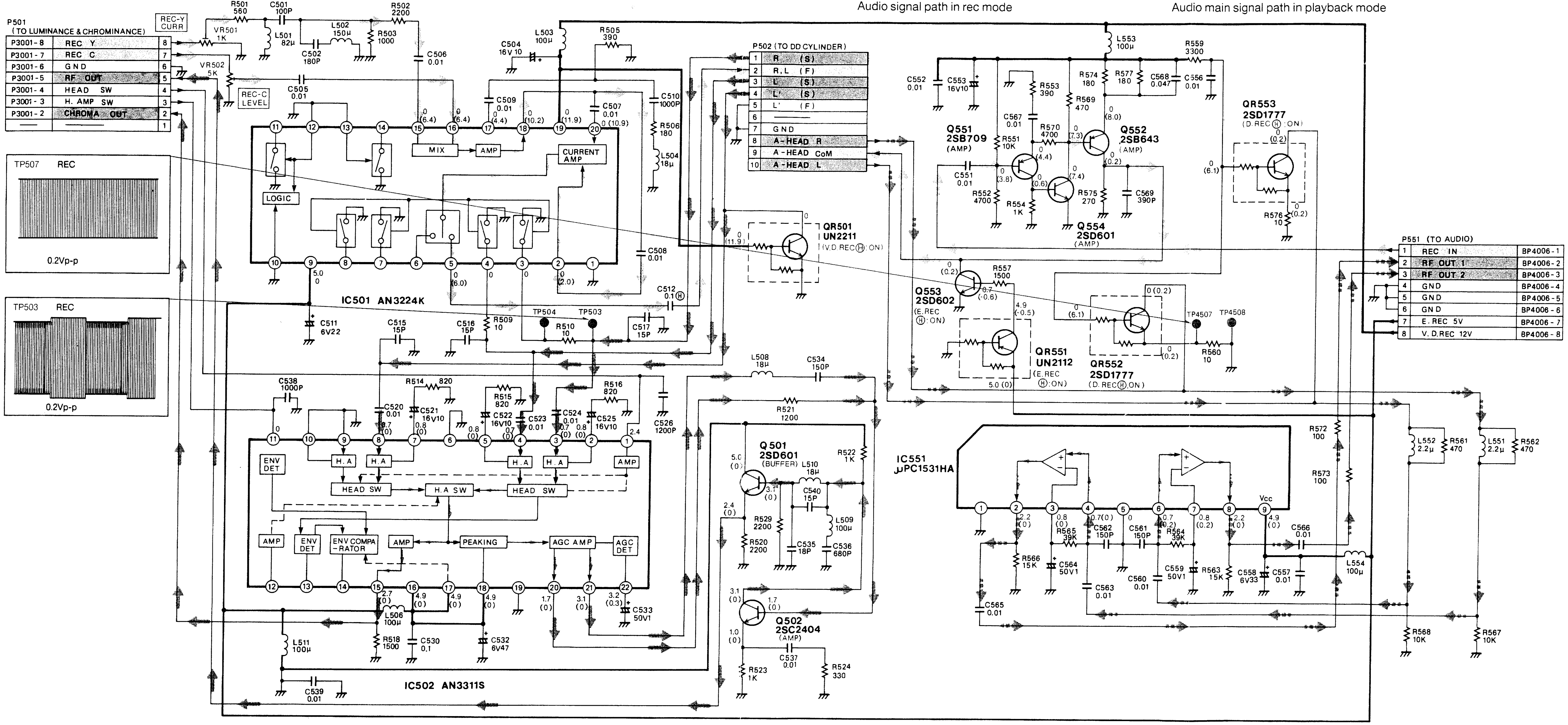


Signalwahl-Zusatzplatine
Input Select Pack Circuit Board

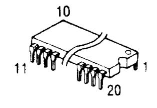
Schaltbild des Video/Audio-Kopfverstärkers
Video/Audio Head Amp. Pack Schematic Diagram

Hauptsignalweg Video-Aufnahme
Video main signal path in rec mode
Hauptsignalweg Audio-Aufnahme
Audio signal path in rec mode

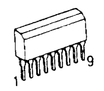
Hauptsignalweg Video-Wiedergabe
Video main signal path in playback mode
Hauptsignalweg Audio-Wiedergabe
Audio main signal path in playback mode


P501
(TO LUMINANCE & CHROMINANCE)
P3001-8 REC Y
P3001-7 REC C
P3001-6 GND
P3001-5 RF OUT
P3001-4 HEAD SW
P3001-3 H. AMP SW
P3001-2 CHROMA OUT
REC-Y CURR
REC-C LEVEL
VR501 1K
VR502 5K
TP507 REC
0.2Vp-p
TP503 REC
0.2Vp-p
IC501 AN3224K
LOGIC
MIX
AMP
CURRENT AMP
P502 (TO DD CYLINDER)
R (S)
R, L (F)
L (S)
L' (S)
L' (F)
GND
A-HEAD R
A-HEAD CoM
A-HEAD L
QR501 UN2211
(V.D.REC Ⓗ:ON)
TP504
TP503
Q551 2SB709 (AMP)
Q552 2SB643 (AMP)
Q554 2SD601 (AMP)
Q553 2SD602 (E.REC Ⓗ:ON)
QR553 2SD1777 (D.REC Ⓗ:ON)
QR551 UN2112 (E.REC Ⓗ:ON)
QR552 2SD1777 (D.REC Ⓗ:ON)
TP4507
TP4508
P551 (TO AUDIO)
1 REC IN BP4006-1
2 RF OUT 1 BP4006-2
3 RF OUT 2 BP4006-3
4 GND BP4006-4
5 GND BP4006-5
6 GND BP4006-6
7 E.REC 5V BP4006-7
8 V.D.REC 12V BP4006-8
IC502 AN3311S
ENV DET
H.A
HEAD SW
H.A SW
AMP
ENV COMPA-RATOR
PEAKING
AGC AMP
AGC DET
Q501 2SD601 (BUFFER)
Q502 2SC2404 (AMP)
IC551 μPC1531HA
Vcc

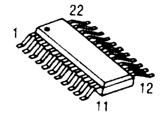
Halbleiter-Anschlußpunkte
Semi Conductor Connection



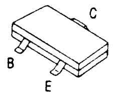
AN3224K



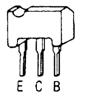
μPC1531HA



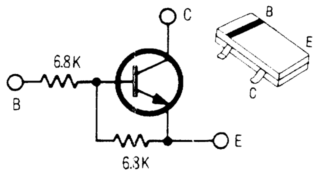
AN3311S

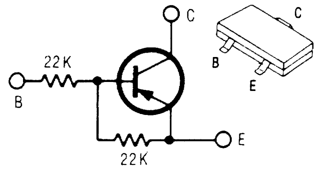


2SD601
2SD602
2SB709
2SC2404



2SB643

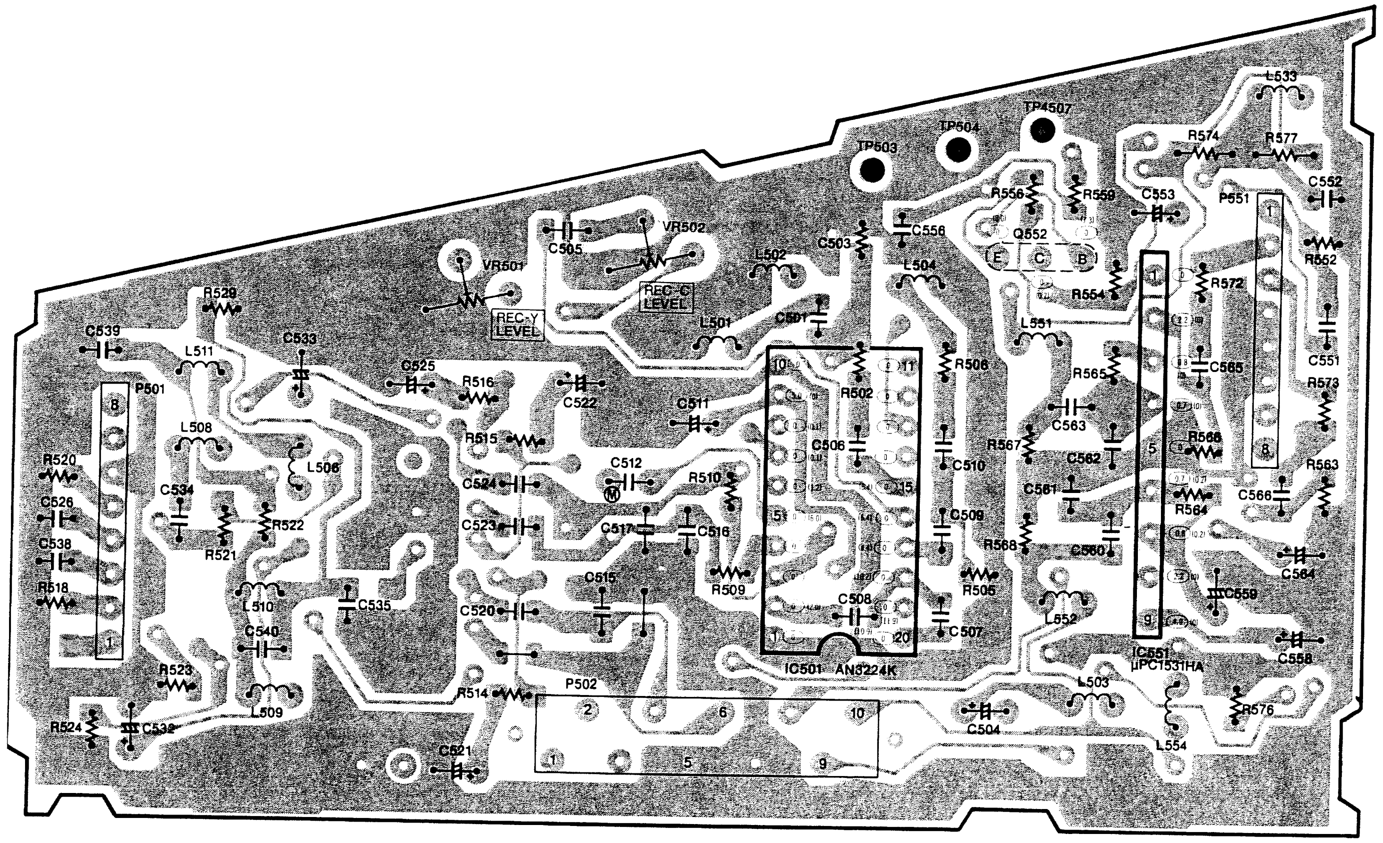

C
B
E
6.8K
6.3K
B
C
E
2SD1777


C
B
E
22K
22K
C
B
E
UN2112

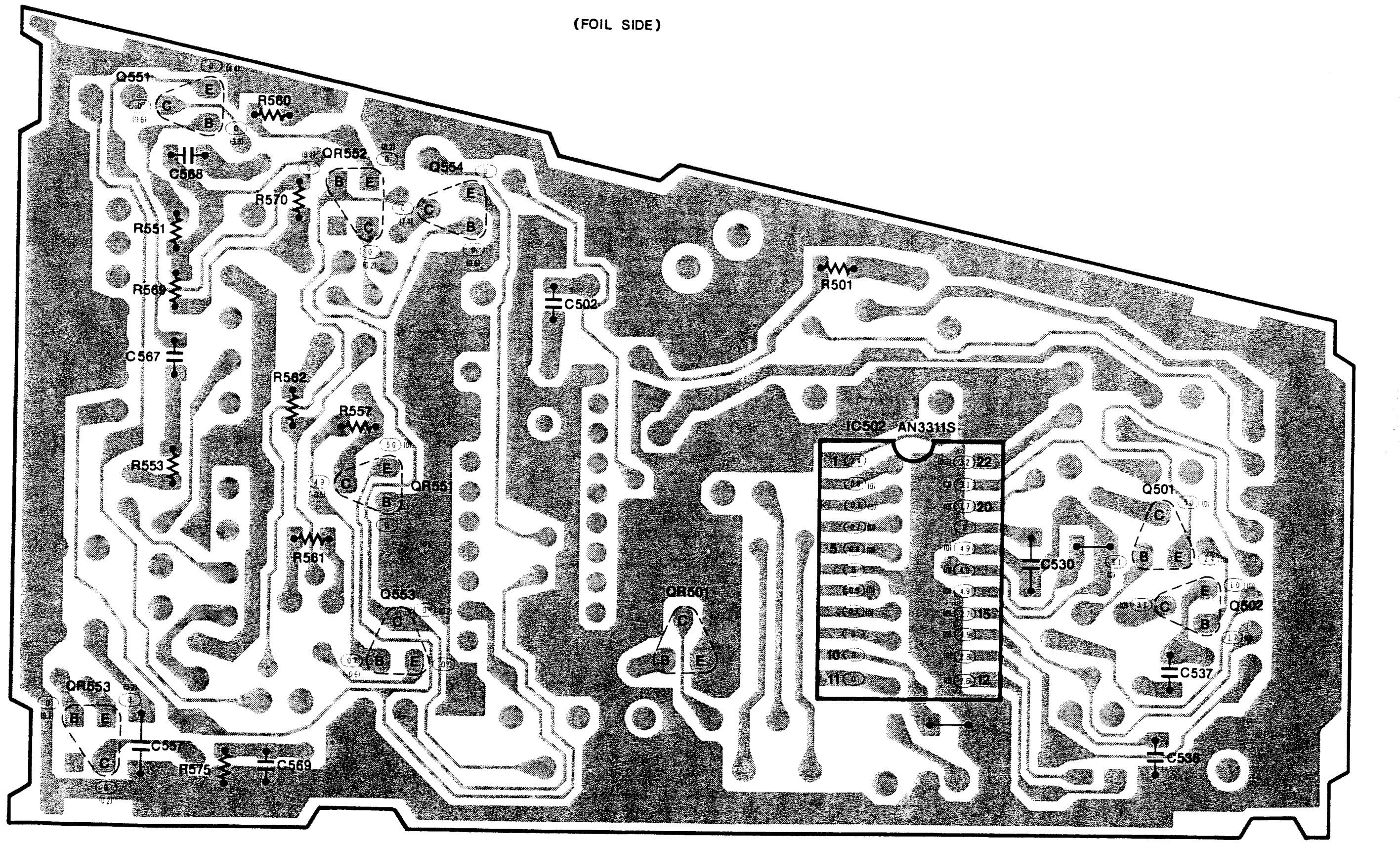
Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

Video/Audio-Kopfverstärkerplatine
Video/Audio Head Amp. Pack. Circuit Board

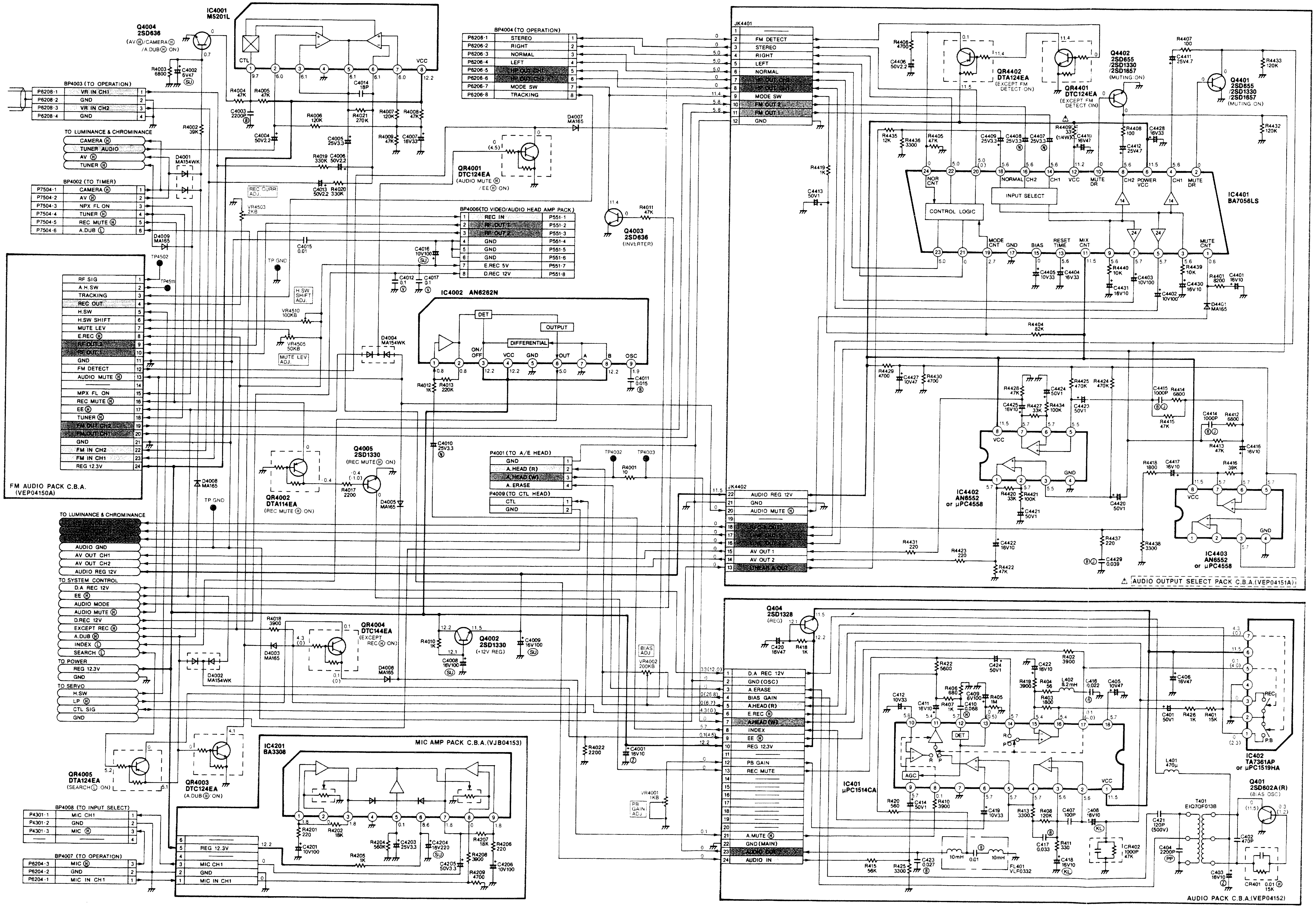

TP503
TP504
TP4507
L533
R574
R577
C552
P551
R558
R559
C553
Q552
E
C
B
R552
R572
R554
C551
R573
VR502
C505
VR501
REC-Y LEVEL
REC-C LEVEL
L502
C503
C556
L504
L501
C501
R506
R502
R529
C539
L511
C533
C525
R516
C522
C511
P501
L508
R515
L506
C512
R510
C506
C510
R520
C526
C534
R522
C524
C523
C517
C516
C509
R521
C538
R518
C515
R509
C508
R505
C507
L510
C540
C535
C520
IC501 AN3224K
R523
R514
P502
L509
R524
C532
C521
C504
L503
L554
R576
L551
R565
C563
R567
C562
C561
C560
R568
L552
R566
R564
C566
R563
C564
C559
IC551 µPC1531HA
C558
R555

(FOIL SIDE)


Q551
C
E
B
R560
C568
QR552
Q554
R570
R551
R569
C502
R501
C567
R562
R557
QR551
R553
R561
Q553
QR501
IC502 AN3311S
Q501
C530
Q502
C537
QR553
C557
R575
C569
C536

(COMPONENT SIDE)

Schaltbild des Tonteiles
Audio Schematic Diagram

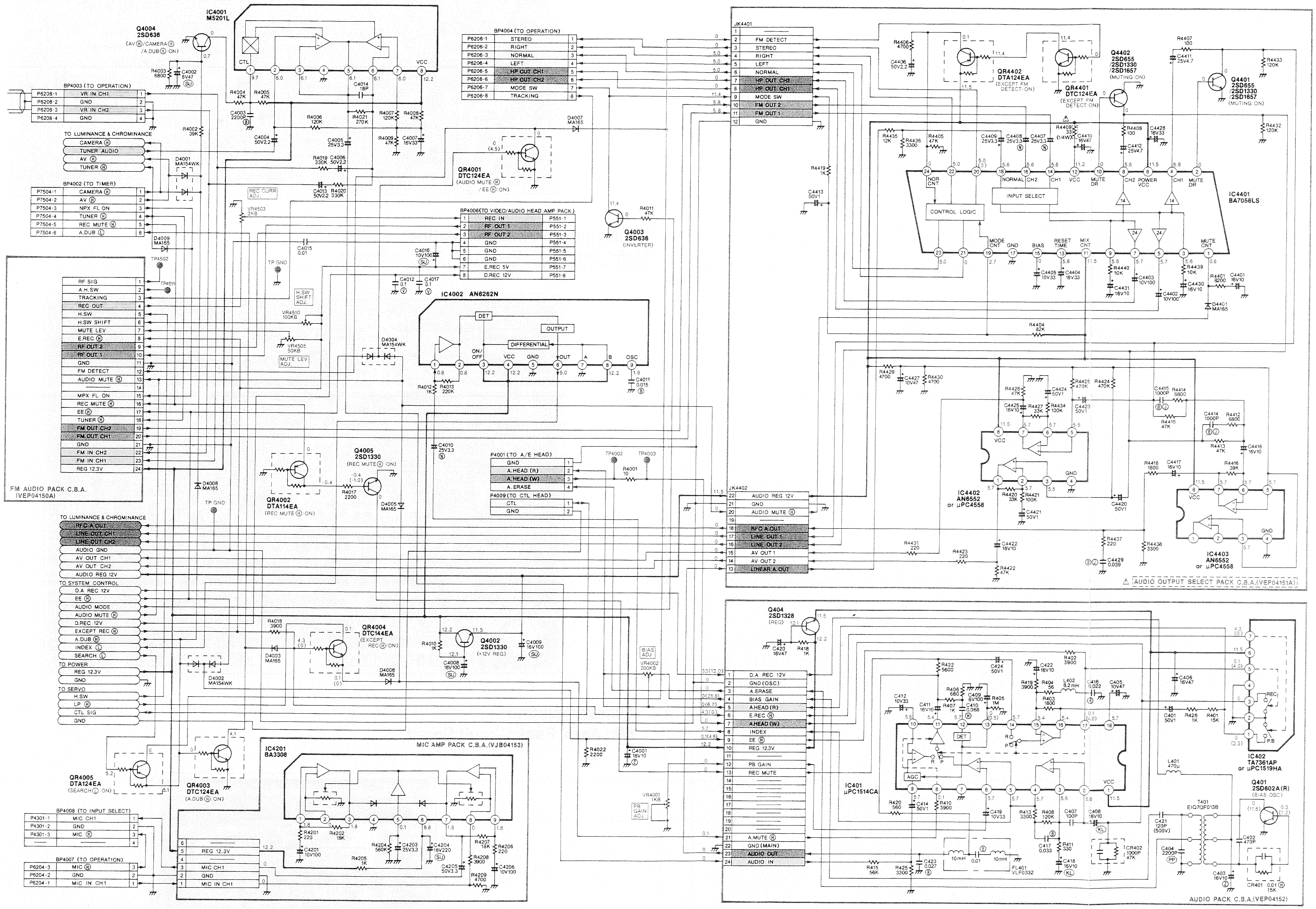

IC4001 M5201L
Q4004 2SD636
BP4003 (TO OPERATION)
TO LUMINANCE & CHROMINANCE
BP4002 (TO TIMER)
FM AUDIO PACK C.B.A. (VEP04150A)
BP4004 (TO OPERATION)
QR4001 DTC124EA (AUDIO MUTE Ⓡ /EE Ⓡ ON)
BP4006 (TO VIDEO/AUDIO HEAD AMP PACK)
Q4003 2SD636 (INVERTER)
IC4002 AN6262N
DET
OUTPUT
DIFFERENTIAL
Q4005 2SD1330 (REC MUTE Ⓡ ON)
QR4002 DTA114EA (REC MUTE Ⓡ ON)
P4001 (TO A/E HEAD)
P4009 (TO CTL HEAD)
TO SYSTEM CONTROL
TO POWER
TO SERVO
QR4004 DTC144EA (EXCEPT REC Ⓡ ON)
Q4002 2SD1330 (+12V REG)
QR4005 DTA124EA (SEARCH Ⓛ ON)
QR4003 DTC124EA (A.DUB Ⓡ ON)
IC4201 BA3308
MIC AMP PACK C.B.A. (VJB04153)
BP4008 (TO INPUT SELECT)
BP4007 (TO OPERATION)
JK4401
Q4402 2SD655 /2SD1330 /2SD1657 (MUTING ON)
QR4402 DTA124EA (EXCEPT FM DETECT ON)
QR4401 DTC124EA (EXCEPT FM DETECT ON)
Q4401 2SD655 /2SD1330 /2SD1657 (MUTING ON)
IC4401 BA7056LS
INPUT SELECT
CONTROL LOGIC
IC4402 AN6552 or µPC4558
IC4403 AN6552 or µPC4558
JK4402
AUDIO OUTPUT SELECT PACK C.B.A. (VEP04151A)
Q404 2SD1328 (REG)
IC401 µPC1514CA
AGC
IC402 TA7361AP or µPC1519HA
Q401 2SD602A(R) (BIAS OSC)
T401 EIQ70F013B
AUDIO PACK C.B.A. (VEP04152)

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe". ( ) ≙ Aufnahme.

DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play". ( ) ≙ Record.

Für Werte ohne Bezeichnung F (µF) oder Ω einsetzen.
Read F (µF) or Ω, respectively unless otherwise noted.

Schaltbild des Tonteiles
Audio Schematic Diagram

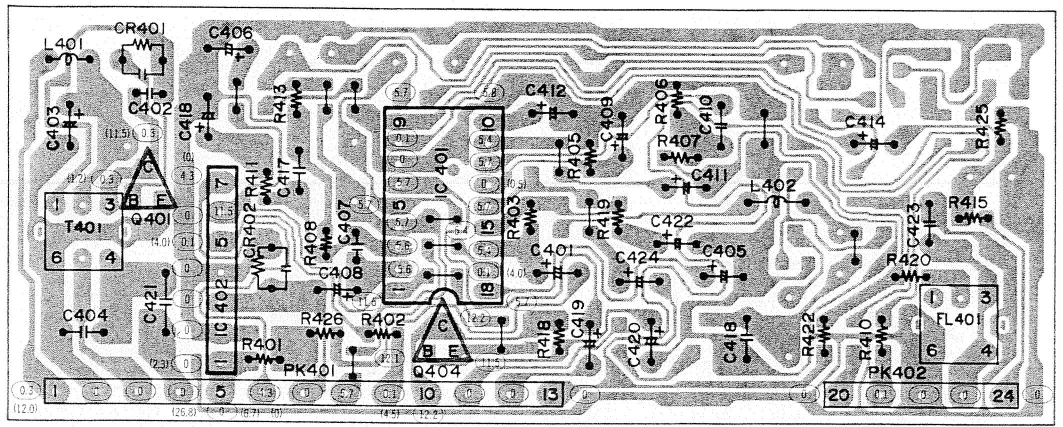

IC4001 M5201L
Q4004 2SD636
BP4003 (TO OPERATION)
VR IN CH1
GND
VR IN CH2
TO LUMINANCE & CHROMINANCE
CAMERA
TUNER AUDIO
AV
TUNER
BP4002 (TO TIMER)
NPX FL ON
REC MUTE
A.DUB
QR4001 DTC124EA
BP4004 (TO OPERATION)
STEREO
RIGHT
NORMAL
LEFT
HP OUT CH1
HP OUT CH2
MODE SW
TRACKING
BP4006 (TO VIDEO/AUDIO HEAD AMP PACK)
REC IN
RF OUT 1
RF OUT 2
E.REC 5V
D.REC 12V
IC4002 AN6262N
DET
OUTPUT
DIFFERENTIAL
Q4003 2SD636 (INVERTER)
RF SIG
A.H.SW
REC OUT
H.SW
H.SW SHIFT
MUTE LEV
E.REC
FM DETECT
AUDIO MUTE
MPX FL ON
EE
FM OUT CH2
FM OUT CH1
FM IN CH2
FM IN CH1
REG 12.3V
FM AUDIO PACK C.B.A. (VEP04150A)
Q4005 2SD1330
QR4002 DTA114EA
P4001 (TO A/E HEAD)
A.HEAD (R)
A.HEAD (W)
A. ERASE
P4009 (TO CTL HEAD)
CTL
RFC A.OUT
LINE OUT CH1
LINE OUT CH2
AUDIO GND
AV OUT CH1
AV OUT CH2
AUDIO REG 12V
TO SYSTEM CONTROL
D.A REC 12V
AUDIO MODE
D.REC 12V
EXCEPT REC
INDEX
SEARCH
TO POWER
TO SERVO
LP
CTL SIG
QR4004 DTC144EA
Q4002 2SD1330
QR4005 DTA124EA
QR4003 DTC124EA
IC4201 BA3308
MIC AMP PACK C.B.A. (VJB04153)
BP4008 (TO INPUT SELECT)
MIC CH1
BP4007 (TO OPERATION)
MIC IN CH1
JK4401
Q4402 2SD655 /2SD1330 /2SD1657 (MUTING:ON)
QR4402 DTA124EA
QR4401 DTC124EA
Q4401 2SD655 /2SD1330 /2SD1657 (MUTING:ON)
IC4401 BA7056LS
INPUT SELECT
CONTROL LOGIC
IC4402 AN6552 or μPC4558
IC4403 AN6552 or μPC4558
JK4402
AUDIO REG 12V
AUDIO MUTE
AV OUT 1
AV OUT 2
LINEAR A.OUT
AUDIO OUTPUT SELECT PACK C.B.A. (VEP04151A)
Q404 2SD1328 (REG)
D.A REC 12V
GND (OSC)
A.ERASE
BIAS GAIN
A.HEAD (R)
E.REC
A.HEAD (W)
REG 12.3V
PB GAIN
REC MUTE
A.MUTE
GND (MAIN)
AUDIO OUT
AUDIO IN
IC401 μPC1514CA
AGC
IC402 TA7361AP or μPC1519HA
Q401 2SD602A (R) (BIAS OSC)
T401 EIQ70F013B
FL401 VLF0332
AUDIO PACK C.B.A. (VEP04152)

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

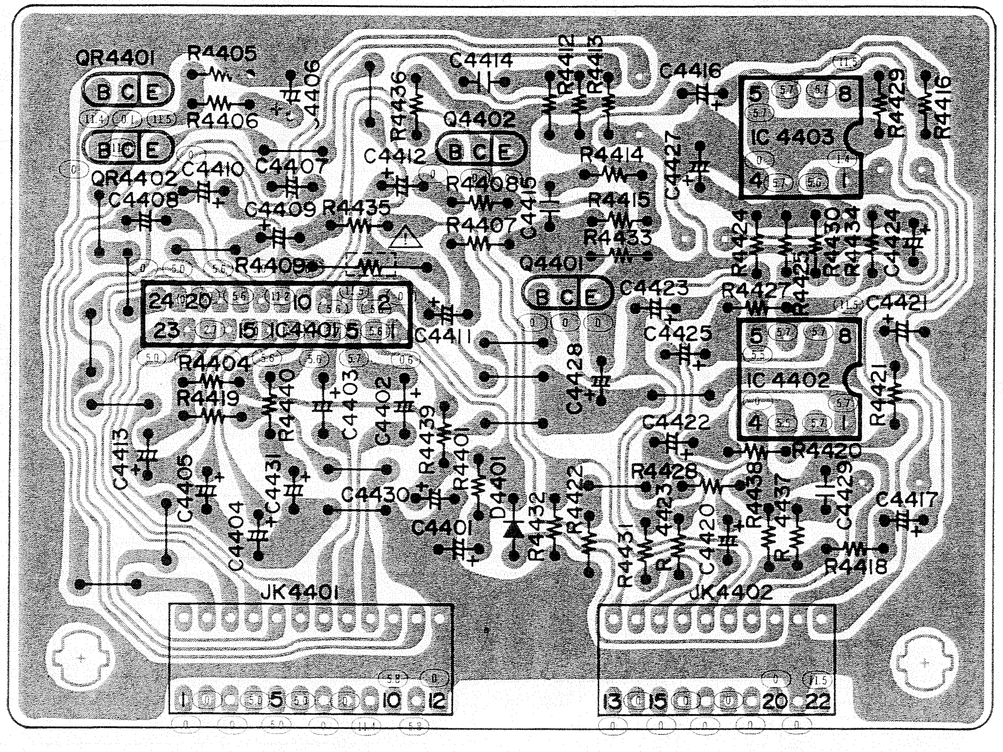
DC voltages tol. ± 15 %' measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

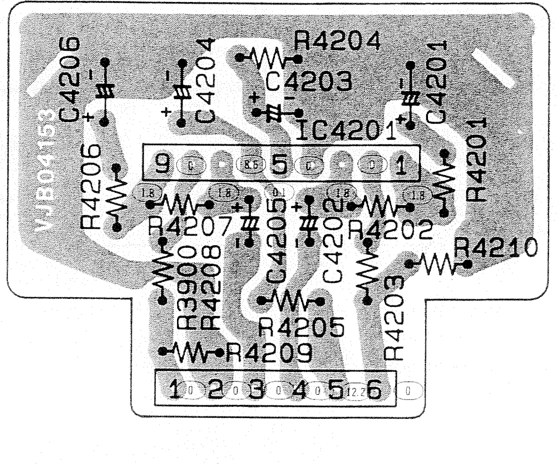
Audio-Zusatzplatine
Audio Pack Circuit Board


L401
CR401
C406
C403
C402
C418
R413
C412
C409
R406
C410
C414
R425
T401
Q401
R411
C417
IC401
R405
R407
C411
L402
R415
CR402
R408
C407
R403
R419
C422
C423
R420
C421
C408
IC402
C401
C424
C405
FL401
C404
R426
R402
R418
C419
C420
R422
R410
R401
PK401
Q404
PK402
1
5
10
13
20
24

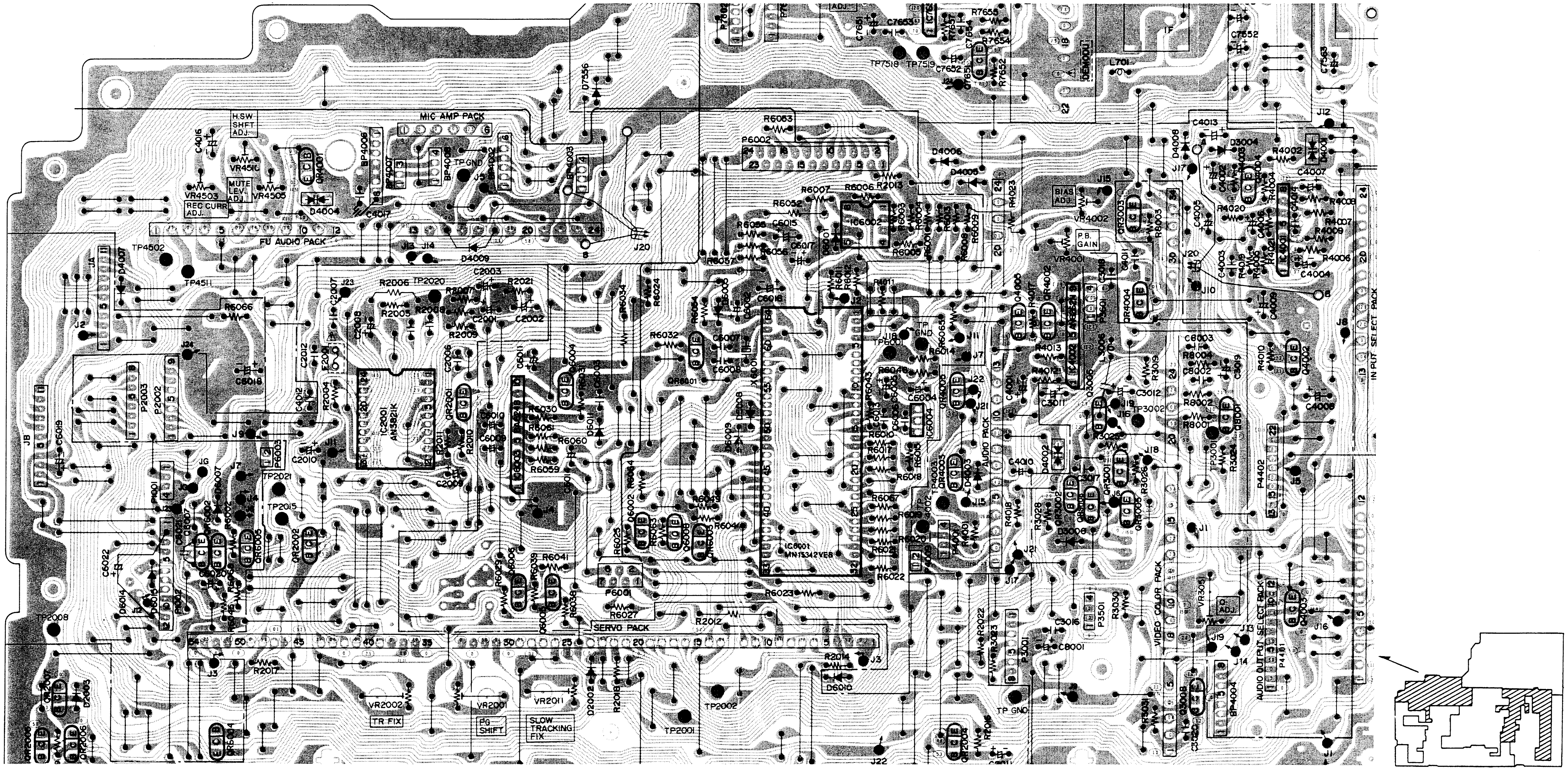
Tonausgangs-Umschaltplatine
Audio Output Select Pack Circuit Board


QR4401
R4405
C4406
C4414
R4412
R4413
C4416
IC 4403
R4429
R4416
R4406
R4436
Q4402
QR4402
C4410
C4407
C4412
R4414
C4427
C4408
C4409
R4435
R4408
R4415
R4407
R4433
R4424
R4430
R4434
C4424
R4409
Q4401
C4423
R4427
C4421
IC4401
C4411
C4425
IC 4402
R4404
R4419
R4440
C4403
C4402
R4439
C4428
C4422
R4421
R4420
C4413
C4405
C4431
R4401
R4428
R4438
C4429
C4417
C4404
C4430
C4401
D4401
R4432
R4422
R4431
R4423
C4420
R4418
JK4401
JK4402
1
5
10
12
13
15
20
22

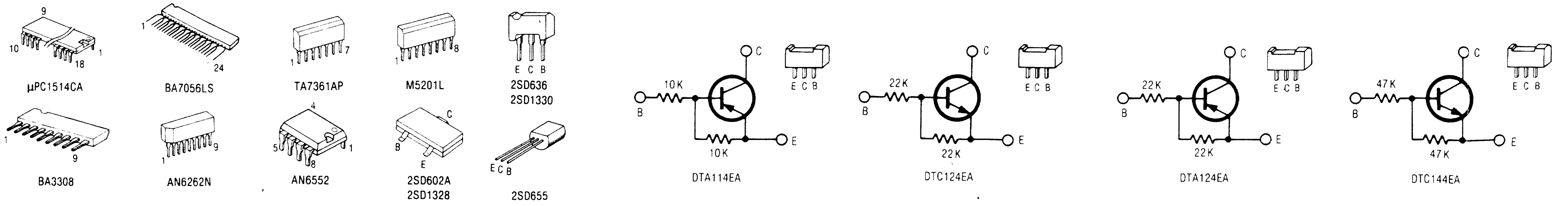
Mikrofonplatine
Mic Amp. Pack Circuit Board


VJB04153
C4206
C4204
R4204
C4203
C4201
IC4201
R4206
R4201
R4207
C4205
C4202
R4202
R4210
R3900
R4208
R4203
R4205
R4209
1
2
3
4
5
6
9

Hauptplatine (Tonteil)
Main Circuit Board (Audio Section)


H.SW SHFT ADJ.
MIC AMP PACK
TP GND
REC CURR ADJ.
MUTE LEV. ADJ.
FU AUDIO PACK
BIAS ADJ.
P.B. GAIN
INPUT SELECT PACK
AUDIO PACK
VIDEO COLOR PACK
AUDIO OUTPUT SELECT PACK
SERVO PACK
IC6001 MN15342VEB
IC2001 AN3821K
TR FIX
PG SHIFT
SLOW TRACKING FIX
VR2002
VR2001
VR2011
TP2001
TP2002
TP2008
TP GND
DEMODU

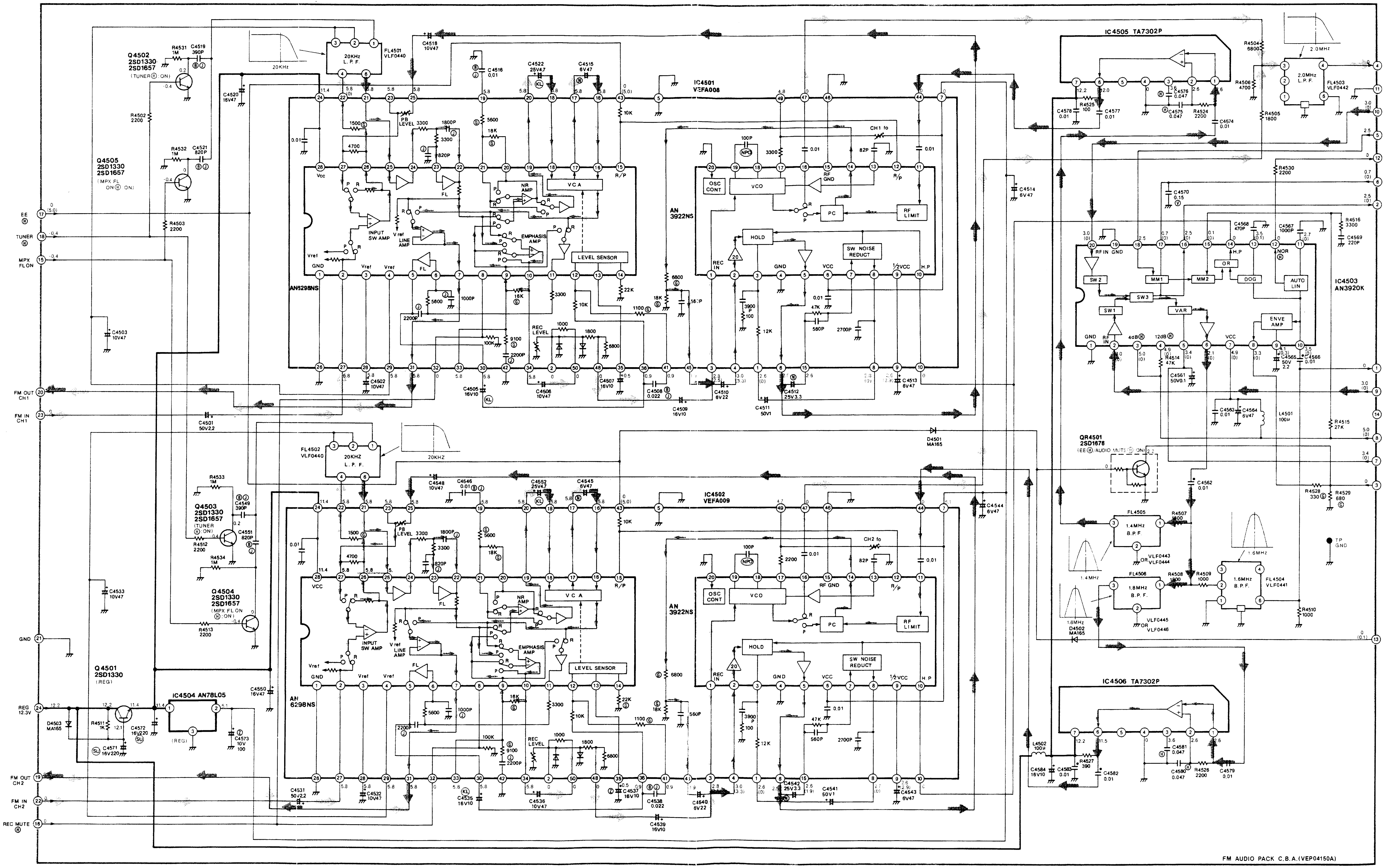
Halbleiter-Anschlußpunkte
Semi Conductor Connection


µPC1514CA
BA7056LS
TA7361AP
M5201L
2SD636
2SD1330
BA3308
AN6262N
AN6552
2SD602A
2SD1328
2SD655
E C B
10 K
10 K
DTA114EA
22 K
22 K
DTC124EA
22 K
22 K
DTA124EA
47 K
47 K
DTC144EA
B
C
E

Schaltbild der FM-Audio-Zusatzplatine
FM Audio Pack Schematic Diagram

Hauptsignalweg für Aufnahme
Main signal path in rec mode

Hauptsignalweg für Wiedergabe
Main signal path in playback mode

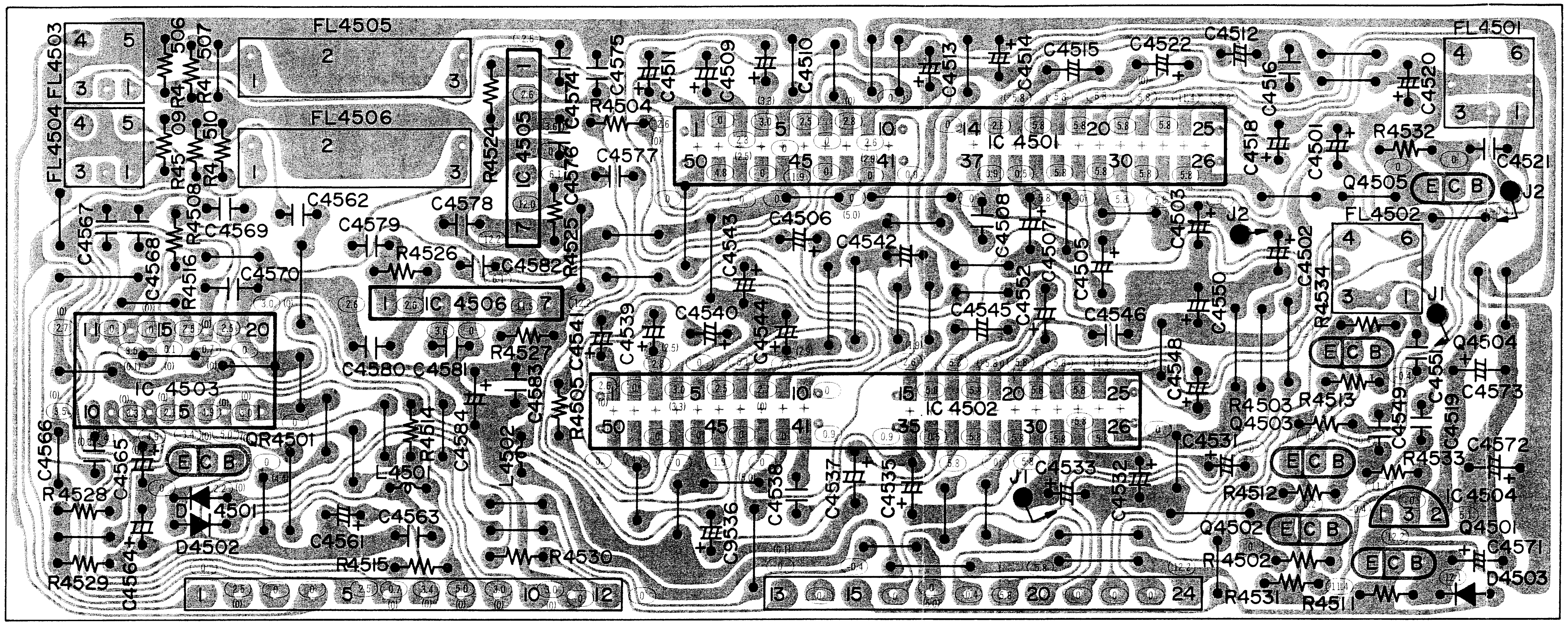

Q4502 2SD1330 2SD1657 (TUNER Ⓡ ON)
Q4505 2SD1330 2SD1657 (MPX FL ON Ⓡ ON)
Q4503 2SD1330 2SD1657 (TUNER Ⓡ ON)
Q4504 2SD1330 2SD1657 (MPX FL ON Ⓡ ON)
Q4501 2SD1330 (REG)
IC4504 AN78L05
FL4501 VLF0440
20KHz L.P.F.
FL4502 VLF0440
20KHZ L.P.F.
20KHz
IC4501 VEFA008
IC4502 VEFA009
AN6298NS
AN3922NS
IC4505 TA7302P
IC4506 TA7302P
IC4503 AN3920K
FL4503 VLF0442
2.0MHz L.P.F.
FL4505 1.4MHz B.P.F.
FL4506 1.8MHz B.P.F.
FL4504 VLF0441 1.6MHz B.P.F.
QR4501 2SD1878
D4501 MA165
D4502 MA165
D4503 MA165
INPUT SW AMP
LINE AMP
NR AMP
EMPHASIS AMP
VCA
LEVEL SENSOR
OSC CONT
VCO
PC
RF LIMIT
HOLD
SW NOISE REDUCT
ENVE AMP
AUTO LIN
EE Ⓡ
TUNER Ⓡ
MPX FL ON
FM OUT CH1
FM IN CH1
GND
REG 12.3V
FM OUT CH2
FM IN CH2
REC MUTE Ⓡ
REC OUT
GND
RF OUT1
H.SW
FM DETECT
H.SW SHIFT
A.H SW
RF SIG
RF OUT2
E.REC Ⓡ
MUTE LEV
TRACKING
TP GND
AUDIO MUTE Ⓡ
FM AUDIO PACK C.B.A.(VEP04150A)

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

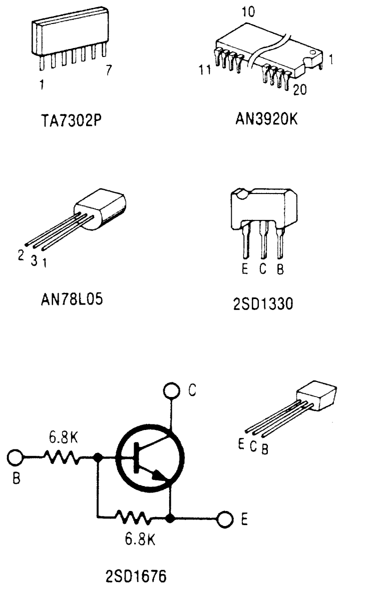
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

FM-Audio-Zusatzplatine
FM Audio Pack Circuit Board

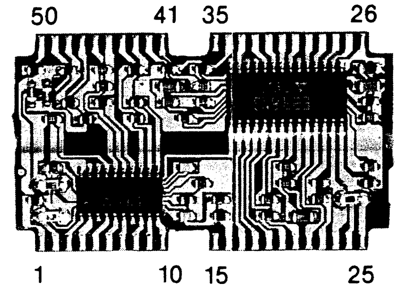

FL4505
FL4506
FL4503
FL4504
FL4501
FL4502
IC 4501
IC 4502
IC 4503
IC 4504
IC 4505
IC 4506
Q4501
Q4502
Q4503
Q4504
Q4505
QR4501
D4501
D4502
D4503
L4501
L4502
J1
J2
E C B
C4501
C4502
C4503
C4505
C4506
C4507
C4508
C4509
C4510
C4511
C4512
C4513
C4514
C4515
C4516
C4518
C4519
C4520
C4521
C4522
C4531
C4533
C4535
C4536
C4537
C4538
C4539
C4540
C4541
C4542
C4543
C4544
C4545
C4546
C4548
C4549
C4550
C4551
C4552
C4561
C4562
C4563
C4564
C4565
C4566
C4567
C4568
C4569
C4570
C4571
C4572
C4573
C4574
C4575
C4576
C4577
C4578
C4579
C4580
C4581
C4582
C4583
C4584
R4502
R4503
R4504
R4505
R4506
R4507
R4508
R4509
R4510
R4511
R4512
R4513
R4514
R4515
R4516
R4524
R4525
R4526
R4527
R4528
R4529
R4530
R4531
R4532
R4533
R4534
1
5
10
12
13
15
20
24
25
26
30
35
37
41
45
50

Halbleiter-Anschlußpunkte
Semi Conductor Connection

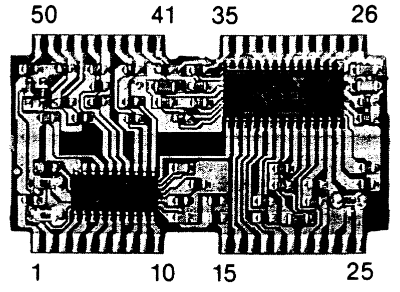

TA7302P
1
7
AN3920K
10
11
1
20
AN78L05
2
3
1
2SD1330
E C B
2SD1676
6.8K
6.8K
B
C
E
E C B

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen „Wiedergabe", ( ) ≙ Aufnahme.

DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ „Play", ( ) ≙ Record.

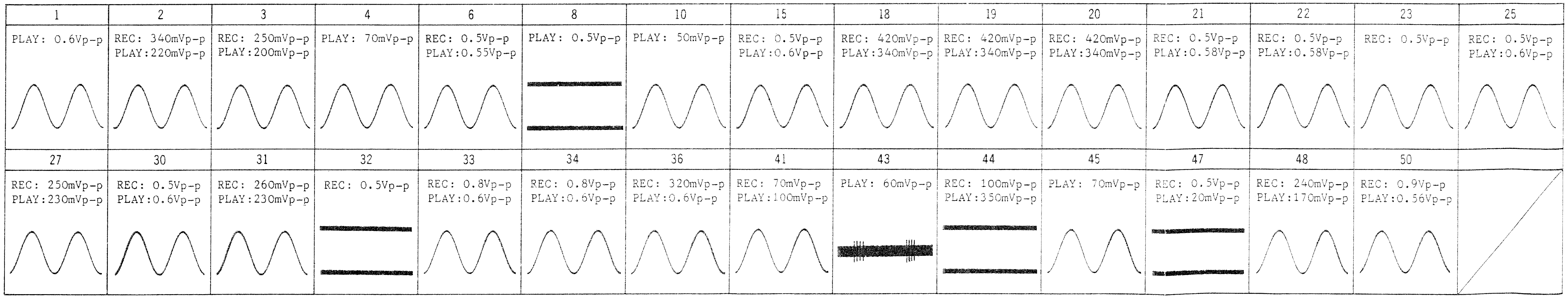

50
41
35
26
1
10
15
25

VEFA008


50
41
35
26
1
10
15
25

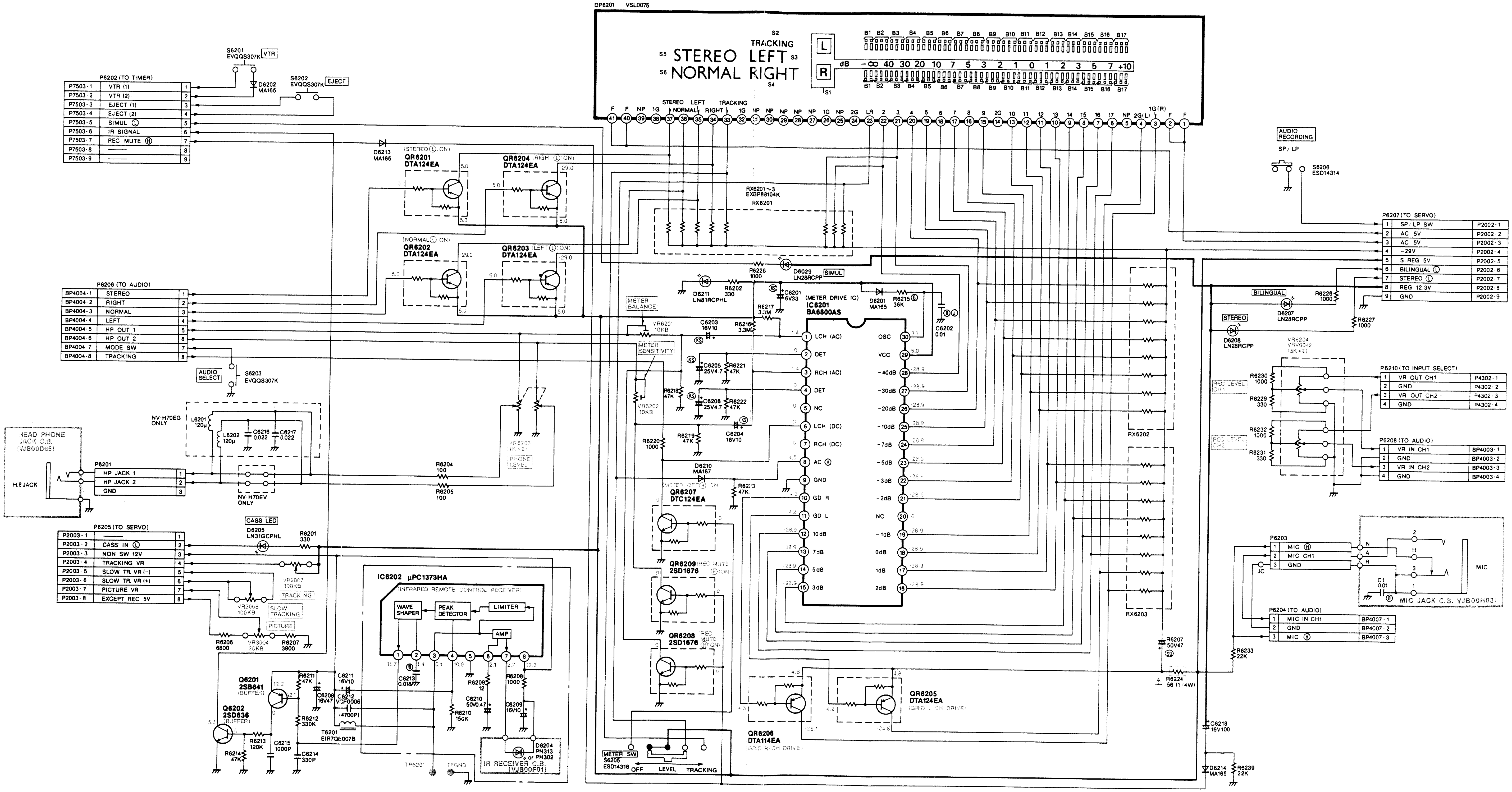
VEFA009

IC4501, IC4502 (VEFA008, VEFA009) INPUT SIGNAL : 1kHz, 1.0Vp-p SINE WAVE



1	2	3	4	6	8	10	15	18	19	20	21	22	23	25
PLAY: 0.6Vp-p	REC: 340mVp-p PLAY:220mVp-p	REC: 250mVp-p PLAY:200mVp-p	PLAY: 70mVp-p	REC: 0.5Vp-p PLAY:0.55Vp-p	PLAY: 0.5Vp-p	PLAY: 50mVp-p	REC: 0.5Vp-p PLAY:0.6Vp-p	REC: 420mVp-p PLAY:340mVp-p	REC: 420mVp-p PLAY:340mVp-p	REC: 420mVp-p PLAY:340mVp-p	REC: 0.5Vp-p PLAY:0.58Vp-p	REC: 0.5Vp-p PLAY:0.58Vp-p	REC: 0.5Vp-p	REC: 0.5Vp-p PLAY:0.6Vp-p
27	**30**	**31**	**32**	**33**	**34**	**36**	**41**	**43**	**44**	**45**	**47**	**48**	**50**	
REC: 250mVp-p PLAY:230mVp-p	REC: 0.5Vp-p PLAY:0.6Vp-p	REC: 260mVp-p PLAY:230mVp-p	REC: 0.5Vp-p	REC: 0.8Vp-p PLAY:0.6Vp-p	REC: 0.8Vp-p PLAY:0.6Vp-p	REC: 320mVp-p PLAY:0.6Vp-p	REC: 70mVp-p PLAY:100mVp-p	PLAY: 60mVp-p	REC: 100mVp-p PLAY:350mVp-p	PLAY: 70mVp-p	REC: 0.5Vp-p PLAY:20mVp-p	REC: 240mVp-p PLAY:170mVp-p	REC: 0.9Vp-p PLAY:0.56Vp-p	

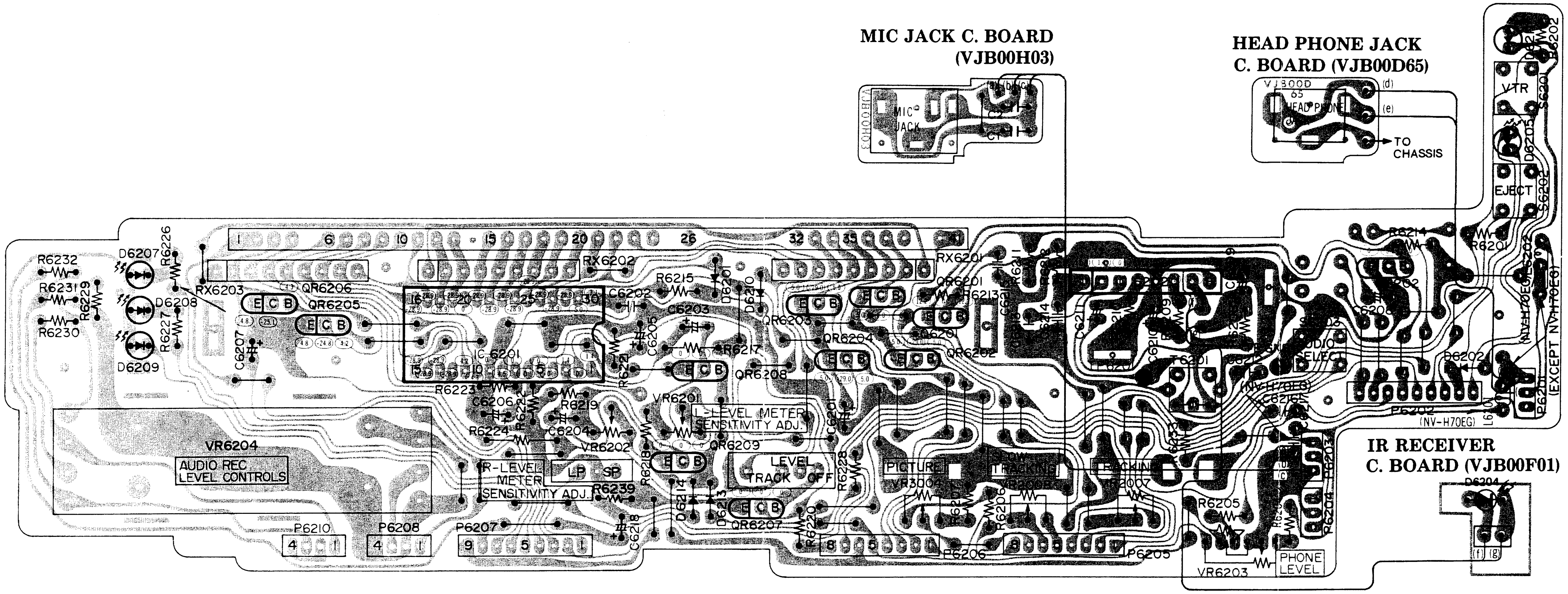
Schaltbild Bedienteil
Operation Schematic Diagram


DP6201 VSL0075
STEREO
NORMAL
TRACKING
LEFT
RIGHT
dB −∞ 40 30 20 10 7 5 3 2 1 0 1 2 3 5 7 +10
S6201 EVQQS307K VTR
S6202 EVQQS307K EJECT
P6202 (TO TIMER)
P7503-1 VTR (1)
P7503-2 VTR (2)
P7503-3 EJECT (1)
P7503-4 EJECT (2)
P7503-5 SIMUL
P7503-6 IR SIGNAL
P7503-7 REC MUTE
D6202 MA165
D6213 MA165
QR6201 DTA124EA
QR6204 DTA124EA
QR6202 DTA124EA
QR6203 DTA124EA
P6206 (TO AUDIO)
BP4004-1 STEREO
BP4004-2 RIGHT
BP4004-3 NORMAL
BP4004-4 LEFT
BP4004-5 HP OUT 1
BP4004-6 HP OUT 2
BP4004-7 MODE SW
BP4004-8 TRACKING
AUDIO SELECT
S6203 EVQQS307K
NV-H70EG ONLY
L6201 120μ
L6202 120μ
C6216 0.022
C6217 0.022
HEAD PHONE JACK C.B. (VJB00D85)
H.P.JACK
P6201
HP JACK 1
HP JACK 2
GND
NV-H70EV ONLY
R6204 100
R6205 100
P6205 (TO SERVO)
P2003-1
P2003-2 CASS IN
P2003-3 NON SW 12V
P2003-4 TRACKING VR
P2003-5 SLOW TR VR (−)
P2003-6 SLOW TR VR (+)
P2003-7 PICTURE VR
P2003-8 EXCEPT REC 5V
CASS LED
D6205 LN31GCPHL
R6201 330
VR2007 100KB TRACKING
VR2008 100KB SLOW TRACKING
PICTURE
R6206 6800
VR3004 20KB
R6207 3900
IC6202 μPC1373HA
INFRARED REMOTE CONTROL RECEIVER
WAVE SHAPER
PEAK DETECTOR
LIMITER
AMP
Q6201 2SB641 (BUFFER)
Q6202 2SD636 (BUFFER)
R6211 47K
R6212 330K
R6213 120K
R6214 47K
C6215 1000P
C6214 330P
C6211 16V10
C6212 VCF0006
C6213 0.018
R6209 12
R6208 1000
C6210 50V0.47
R6210 150K
C6209 16V10
T6201 EIR7QE007B
D6204 PN313 or PH302
IR RECEIVER C.B. (VJB00F01)
TP6201
FPGND
RX6201~3 EXBP88104K
RX6201
R6228 1000
D6029 LN28RCPP SIMUL
D6211 LN81RCPHL
R6202 330
METER BALANCE
VR6201 10KB
C6201 6V33
(METER DRIVE IC) IC6201 BA6800AS
R6217 3.3M
C6203 16V10
R6216 3.3M
D6201 MA165
R6215 36K
C6202 0.01
METER SENSITIVITY
C6205 25V4.7
R6221 47K
R6218 47K
VR6202 10KB
C6206 25V4.7
R6222 47K
R6220 1000
R6219 47K
C6204 16V10
D6210 MA167
R6213 47K
QR6207 DTC124EA
QR6209 2SD1876
QR6208 2SD1876
METER SW S6205 ESD14318
OFF LEVEL TRACKING
QR6206 DTA114EA
QR6205 DTA124EA
LCH (AC) DET RCH (AC) DET NC LCH (DC) RCH (DC) AC GND GD R GD L 10dB 7dB 5dB 3dB
OSC VCC −40dB −30dB −20dB −10dB −7dB −5dB −3dB −2dB NC −1dB 0dB 1dB 2dB
RX6202
RX6203
R6207 50V47
R6224 56 (1/4W)
AUDIO RECORDING
SP / LP
S6206 ESD14314
P6207 (TO SERVO)
SP / LP SW P2002-1
AC 5V P2002-2
AC 5V P2002-3
−29V P2002-4
S. REG 5V P2002-5
BILINGUAL P2002-6
STEREO P2002-7
REG 12.3V P2002-8
GND P2002-9
BILINGUAL
R6226 1000
D6207 LN28RCPP
R6227 1000
STEREO
D6208 LN28RCPP
VR6204 VRV0042 (5K × 2)
REC LEVEL CH1
REC LEVEL CH2
R6230 1000
R6229 330
R6232 1000
R6231 330
P6210 (TO INPUT SELECT)
VR OUT CH1 P4302-1
GND P4302-2
VR OUT CH2 P4302-3
GND P4302-4
P6208 (TO AUDIO)
VR IN CH1 BP4003-1
GND BP4003-2
VR IN CH2 BP4003-3
GND BP4003-4
P6203
MIC
MIC CH1
GND
JC
C1 0.01
MIC JACK C.B. VJB00H03
P6204 (TO AUDIO)
MIC IN CH1 BP4007-1
GND BP4007-2
MIC BP4007-3
R6233 22K
C6218 16V100
D6214 MA165
R6239 22K

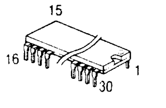
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

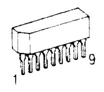
Bedienteilplatine
Operation Circuit Board


MIC JACK C. BOARD (VJB00H03)
MIC JACK
HEAD PHONE JACK C. BOARD (VJB00D65)
HEAD PHONE
(d)
(e)
TO CHASSIS
IR RECEIVER C. BOARD (VJB00F01)
D6204
(f)
(g)
VTR
EJECT
(EXCEPT NV-H70EG)
(NV-H70EG)
R6232
R6231
R6230
R6229
R6226
R6227
D6207
D6208
D6209
RX6203
QR6206
QR6205
C6207
IC 6201
RX6202
C6202
C6205
C6203
R6215
R6217
QR6208
R6223
C6206
R6219
C6204
VR6202
R6224
R6221
VR6201
L-LEVEL METER SENSITIVITY ADJ.
QR6209
R-LEVEL METER SENSITIVITY ADJ.
LP
SP
R6239
LEVEL TRACK OFF
QR6207
D6214
D6213
C6218
R6220
R6228
VR6204
AUDIO REC LEVEL CONTROLS
P6210
P6208
P6207
P6206
P6205
PICTURE
VR3004
TRACKING
R6205
VR6203
PHONE LEVEL
RX6201
QR6201
R6213
QR6203
QR6204
QR6202
T6201
AUDIO SELECT
R6214
R8201
P6202
P6201
D6205
S6201
S6202
R6204
R6202
C6201
E
C
B

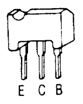
Halbleiter-Anschlußpunkte
Semi Conductor Connection



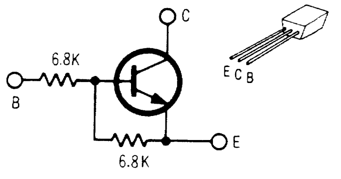
BA6800AS

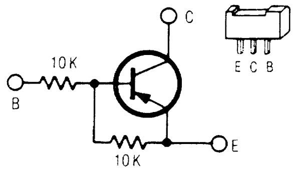


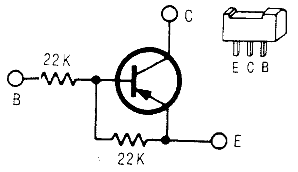
µPC1373HA

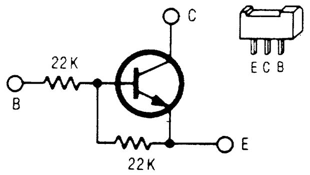


2SD636
2SB641


C
B
E
6.8K
6.8K
E C B
2SD1676

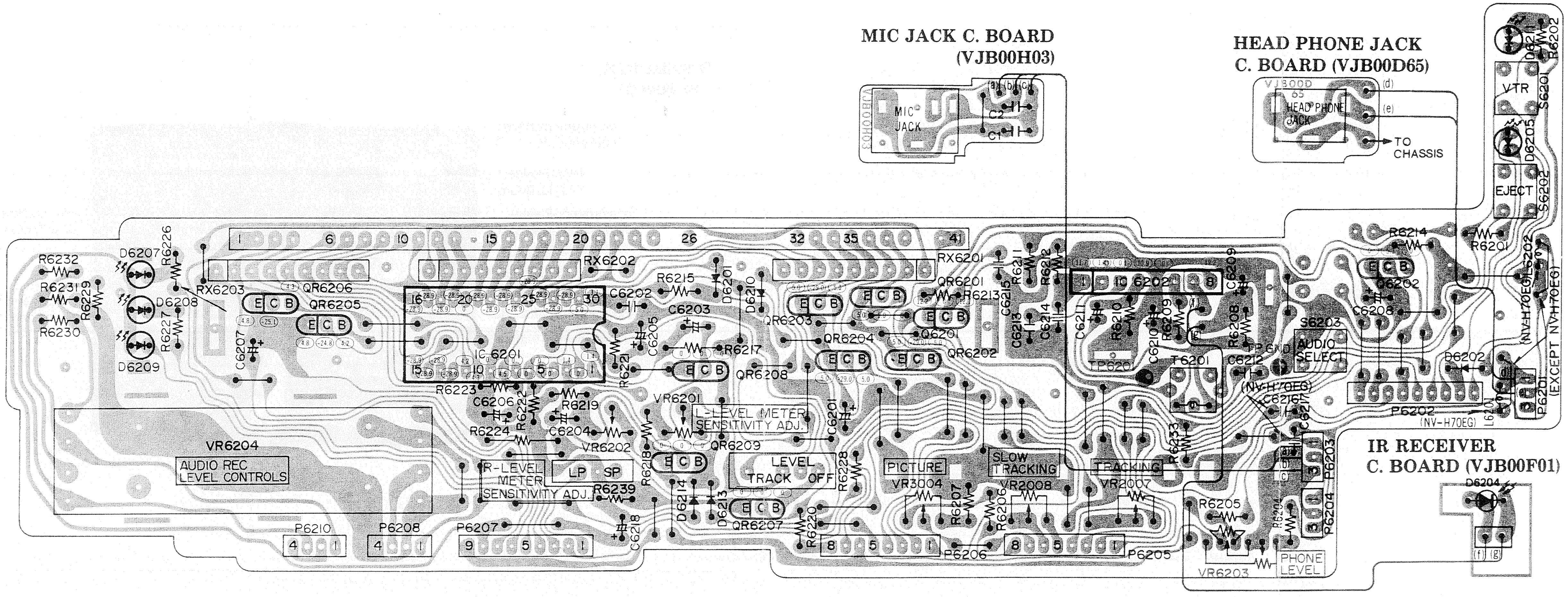

C
B
E
10K
10K
E C B
DTA114EA


C
B
E
22K
22K
E C B
DTA124EA

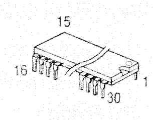

C
B
E
22K
22K
E C B
DTC124EA

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

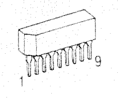
Bedienteilplatine
Operation Circuit Board


MIC JACK C. BOARD
(VJB00H03)
MIC JACK
C2
C1
HEAD PHONE JACK
C. BOARD (VJB00D65)
HEAD PHONE JACK
TO CHASSIS
VTR
EJECT
D6211
R6202
S6201
D6205
S6202
R6214
R6201
S6203
AUDIO SELECT
D6202
(NV-H70EG)
(EXCEPT NV-H70EG)
P6201
P6202
IR RECEIVER
C. BOARD (VJB00F01)
D6204
R6232
R6231
R6230
R6229
D6207
D6208
D6209
R6226
R6227
RX6203
QR6206
QR6205
C6207
IC 6201
RX6202
C6202
C6203
C6205
R6215
D6201
D6210
R6217
R6221
QR6208
QR6203
QR6204
QR6201
R6213
Q6201
QR6202
RX6201
R6211
R6212
C6215
C6213
C6214
C6211
IC 6202
R6210
C6210
R6209
C6209
R6208
T6201
C6212
C6216
TP6201
R6223
C6206
R6222
R6219
R6224
C6204
VR6202
VR6201
L-LEVEL METER SENSITIVITY ADJ.
QR6209
VR6204
AUDIO REC LEVEL CONTROLS
R-LEVEL METER SENSITIVITY ADJ.
LP SP
R6239
R6218
D6214
D6213
QR6207
C6218
C6201
LEVEL TRACK OFF
R6228
R6220
PICTURE
VR3004
R6207
R6206
SLOW TRACKING
VR2008
TRACKING
VR2007
R6233
R6205
R6204
P6203
P6204
PHONE LEVEL
VR6203
P6210
P6208
P6207
P6206
P6205

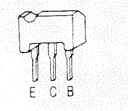
Halbleiter-Anschlußpunkte
Semi Conductor Connection



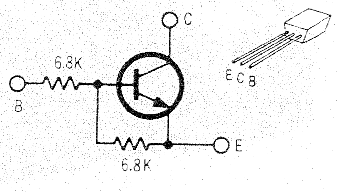
BA6800AS



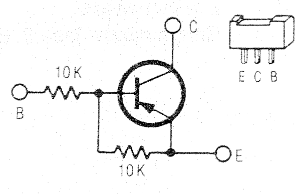
µPC1373HA



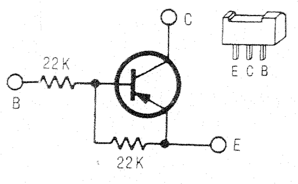
2SD636
2SB641


C
B
E
6.8K
6.8K
E C B

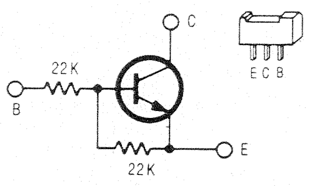
2SD1676


C
B
E
10K
10K
E C B

DTA114EA


C
B
E
22K
22K
E C B

DTA124EA

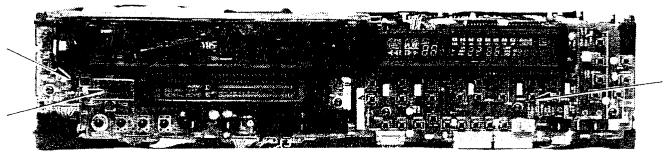

C
B
E
22K
22K
E C B

DTC124EA

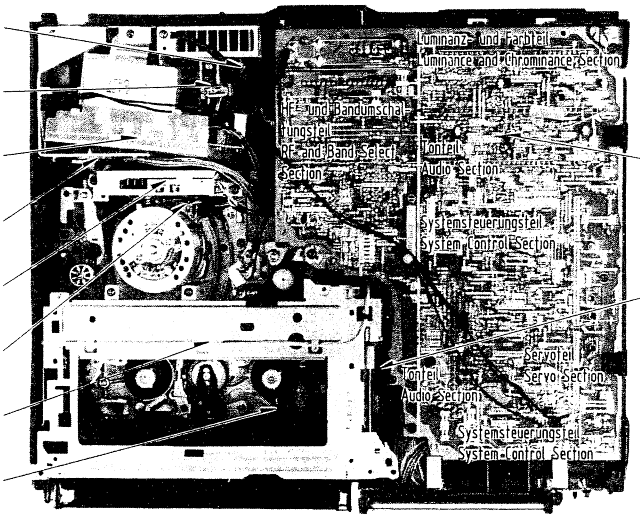
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

Lage der Platinen im Gerät
Circuit Boards Layout

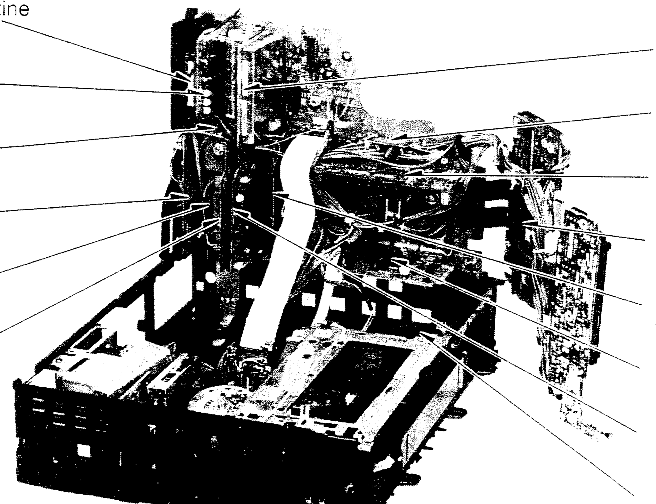
Frontansicht
Front View


Bedienteilplatine
Operation Circuit Board
IR-Empfängerplatine
IR Receiver C. Board
Timerplatine
Timer Circuit Board

Draufsicht (1)
Top View (1)

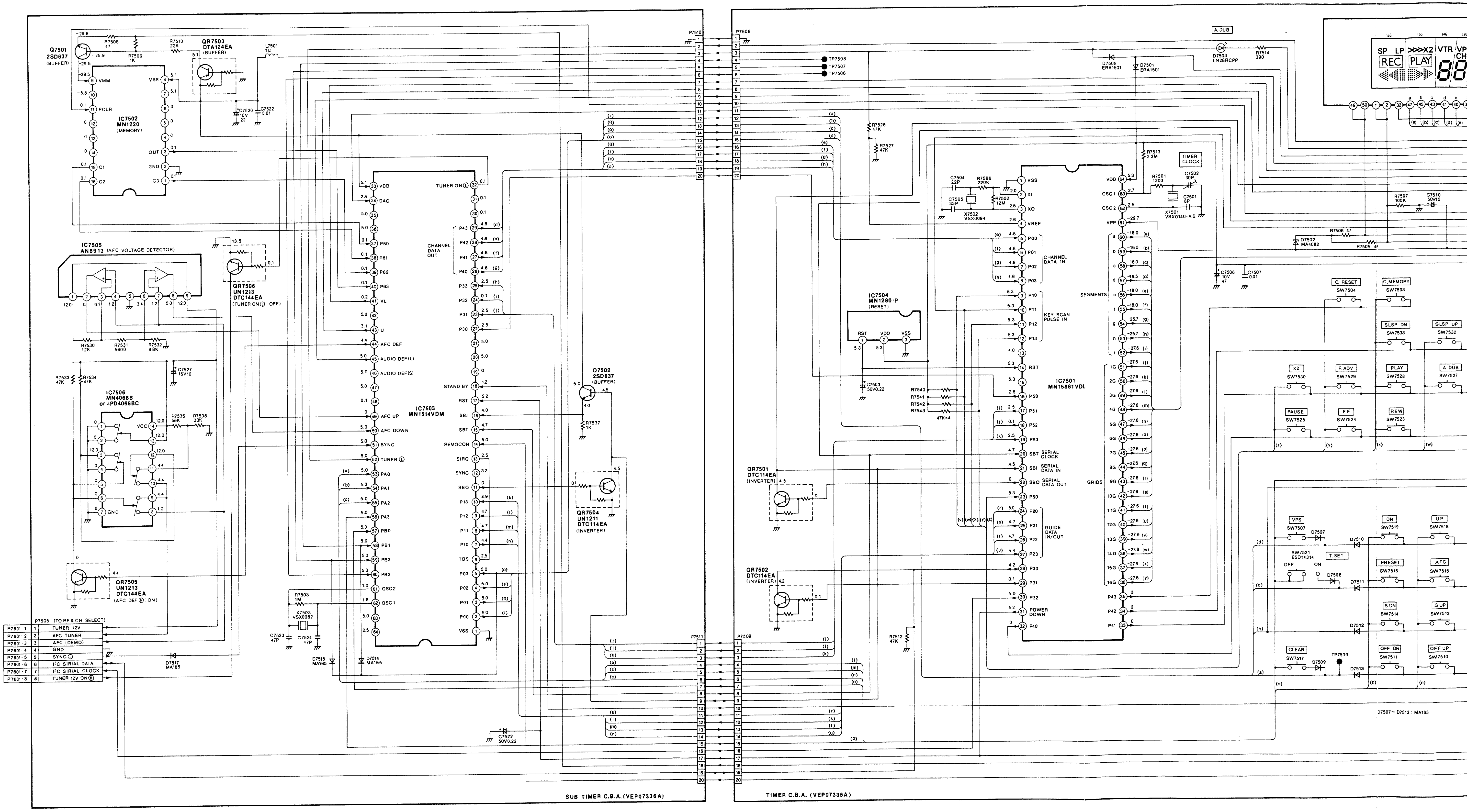

Stabilisierungsplatine
Regulator C. B.
Tr. (2)-Platine
Tr. (2) C. Board
Transformator-Platine
Power-Transformer C. B.
Tr.-Platine
Tr. C. Board
Video/Audio Kopfverstärkerplatine
Video/Audio Head Amp. Pack C. B.
Leistungstransistor-Platine
Heater Tr. C. Board
LED-Platine
LED C. Board
Wickelsensor-Platine
Reel Sensor C. Board
Luminanz- und Farbteil
Luminance and Chrominance Section
HF- und Bandumschaltungsteil
RF- and Band Select Section
Tonteil
Audio Section
Systemsteuerungsteil
System Control Section
Servoteil
Servo Section
Tonteil
Audio Section
Systemsteuerungsteil
System Control Section
Hauptplatine
Main Circuit Board
Cassetten-Einzugsplatine
Front Loading C. B.

Draufsicht (2)
Top View (2)


HF-Konverter und Ant.-Anschluß-Platine
RF Converter and Ant. Terminal Board
Dekoderplatine
Decoder C. Board
SECAM-Zusatzplatine
SECAM Pack C. Board
Signalwahl-Zusatzplatine
Input Select Pack C. Board
Tonausgangs-Umschaltplatine
Audio Output Select Pack C. B.
Luminanz- und Farbplatine
Luminance and Chrominance Pack C. B.
TV-Demodulator-Platine
TV Demodulator C. Board
Mikrofonplatine
Mic Amp. Pack C. Board
FM-Audio-Zusatzplatine
FM Audio Pack C. Board
Timer-Zusatzplatine
Sub Timer C. Board
Audio-Zusatzplatine
Audio Pack C. Board
Servo-Zusatzplatine
Servo Pack C. Board
HQ-Zusatzplatine
HQ Pack C. Board
VPS-Platine
VPS C. Board

Schaltbild der Timerplatine und der Timer-Zusatzplatine
Timer and Sub Timer Schematic Diagram

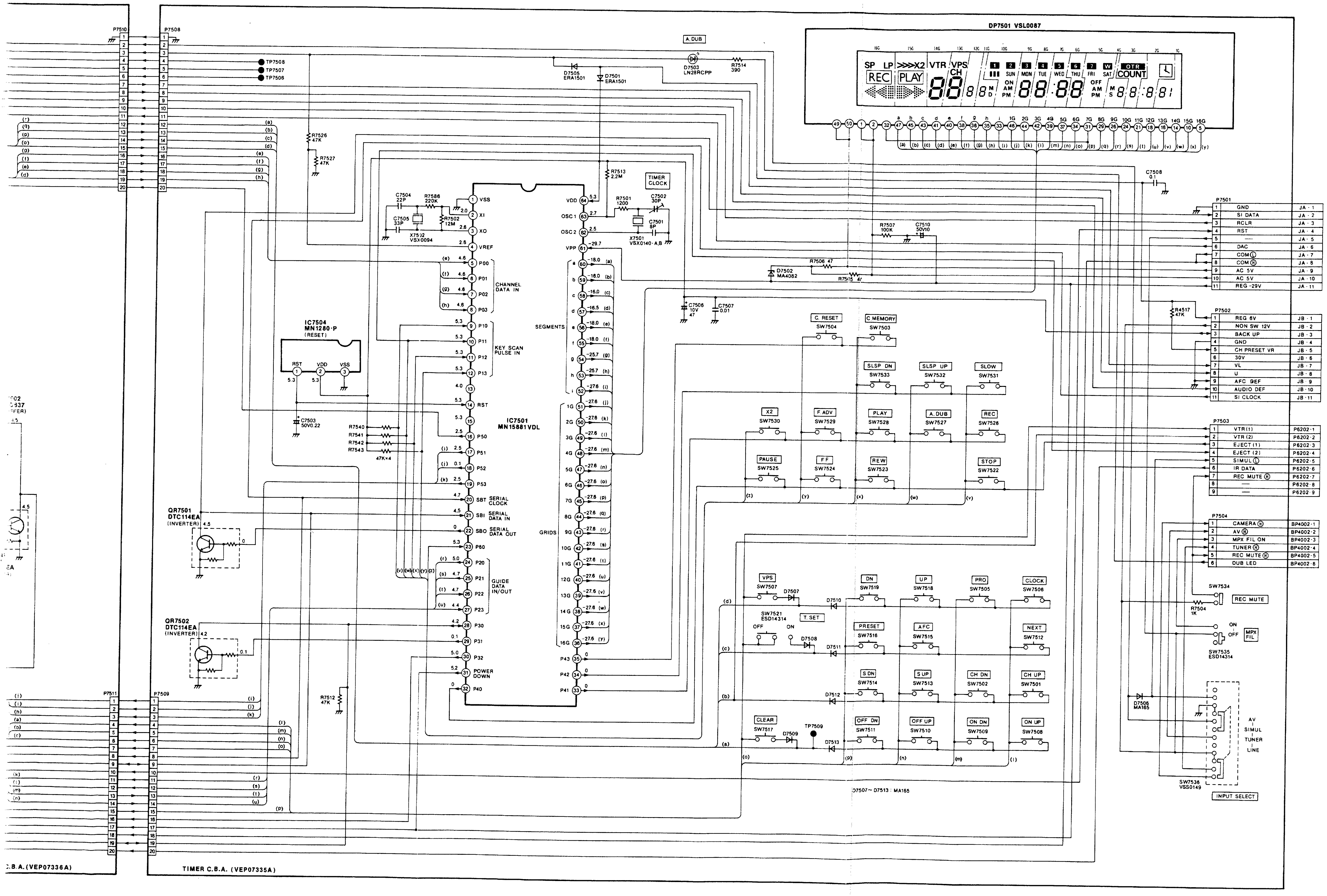
Schaltbil
Timer an


Q7501 2SD637 (BUFFER)
IC7502 MN1220 (MEMORY)
QR7503 DTA124EA (BUFFER)
L7501 1µ
P7510
IC7505 AN6913 (AFC VOLTAGE DETECTOR)
QR7506 UN1213 DTC144EA (TUNER ON Ⓛ : OFF)
IC7503 MN1514VDM
CHANNEL DATA OUT
IC7506 MN4066B or µPD4066BC
QR7505 UN1213 DTC144EA (AFC DEF Ⓗ : ON)
Q7502 2SD637 (BUFFER)
QR7504 UN1211 DTC114EA (INVERTER)
P7505 (TO RF & CH SELECT)
TUNER 12V
AFC TUNER
AFC (DEMO)
GND
SYNC Ⓗ
I²C SIRIAL DATA
I²C SIRIAL CLOCK
TUNER 12V ON Ⓗ
X7503 VSX0082
D7515 MA165
D7514 MA165
D7517 MA165
C7522 50V0.22
F7511
SUB TIMER C.B.A. (VEP07336A)
P7508
P7509
TP7508
TP7507
TP7506
IC7504 MN1280-P (RESET)
QR7501 DTC114EA (INVERTER)
QR7502 DTC114EA (INVERTER)
IC7501 MN15881VDL
X7502 VSX0094
X7501 VSX0140-A,B
TIMER CLOCK
CHANNEL DATA IN
KEY SCAN PULSE IN
SERIAL CLOCK
SERIAL DATA IN
SERIAL DATA OUT
GUIDE DATA IN/OUT
POWER DOWN
SEGMENTS
GRIDS
A.DUB
D7503 LN28RCPP
D7505 ERA1501
D7501 ERA1501
D7502 MA4082
SP LP >>>X2 VTR VP
REC PLAY
C.RESET SW7504
C.MEMORY SW7503
SLSP DN SW7533
SLSP UP SW7532
X2 SW7530
F.ADV SW7529
PLAY SW7528
A.DUB SW7527
PAUSE SW7525
FF SW7524
REW SW7523
VPS SW7507
ON SW7519
UP SW7518
SW7521 ESD14314
T SET
PRESET SW7516
AFC SW7515
S DN SW7514
S UP SW7513
CLEAR SW7517
TP7509
OFF DN SW7511
OFF UP SW7510
D7507~D7513 : MA165
TIMER C.B.A. (VEP07335A)

Gleichspannungen Tol. ± 15% mit Digitalvoltmeter gegen ⊥ gemessen.
1. SW7506 = CLOCK
2. Timer-Anzeige = SUN 0:00

DC voltages tol. ± 15% measured with digital-voltmeter against ⊥.
1. Mode Selector = CLOCK
2. Timer Display = SUN 0:00

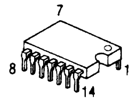
Schaltbild der Timerplatine und der Timer-Zusatzplatine
Timer and Sub Timer Schematic Diagram


DP7501 VSL0087
IC7501 MN15881VDL
IC7504 MN1280-P (RESET)
QR7501 DTC114EA (INVERTER)
QR7502 DTC114EA (INVERTER)
P7501
P7502
P7503
P7504
P7508
P7509
P7510
P7511
TIMER CLOCK
A.DUB
CHANNEL DATA IN
KEY SCAN PULSE IN
GUIDE DATA IN/OUT
SERIAL CLOCK
SERIAL DATA IN
SERIAL DATA OUT
POWER DOWN
SEGMENTS
GRIDS
C.RESET SW7504
C.MEMORY SW7503
SLSP DN SW7533
SLSP UP SW7532
SLOW SW7531
X2 SW7530
F.ADV SW7529
PLAY SW7528
A.DUB SW7527
REC SW7526
PAUSE SW7525
FF SW7524
REW SW7523
STOP SW7522
VPS SW7507
DN SW7519
UP SW7518
PRO SW7505
CLOCK SW7506
T.SET
PRESET SW7516
AFC SW7515
NEXT SW7512
S DN SW7514
S UP SW7513
CH DN SW7502
CH UP SW7501
CLEAR SW7517
OFF DN SW7511
OFF UP SW7510
ON DN SW7509
ON UP SW7508
D7507~D7513 : MA165
REC MUTE
MPX FIL
INPUT SELECT
AV
SIMUL
TUNER
LINE
GND
SI DATA
RCLR
RST
DAC
AC 5V
REG -29V
REG 6V
NON SW 12V
BACK UP
CH PRESET VR
30V
VL
AFC DEF
AUDIO DEF
SI CLOCK
VTR (1)
VTR (2)
EJECT (1)
EJECT (2)
REC MUTE
CAMERA
AV
MPX FIL ON
TUNER
DUB LED
TIMER C.B.A. (VEP07335A)
C.B.A. (VEP07336A)

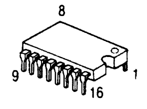
Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

Timerplatine und Timer-Zusatzplatine
Timer Circuit Board and Sub Timer Circuit Board

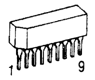
Halbleiter-Anschlußpunkte
Semi Conductor Connection



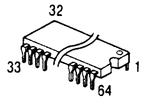
MN4066B



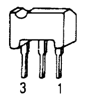
MN1220



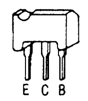
AN6913



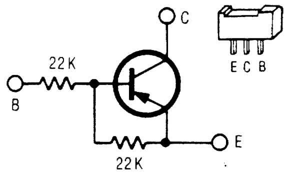
MN15881VDL
MN1514VDM
MN15261VDE



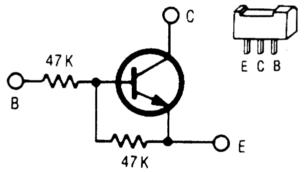
MN1280



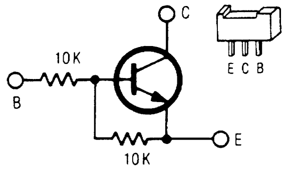
2SD637


22K
B
C
E
22K
E C B

DTA124EA

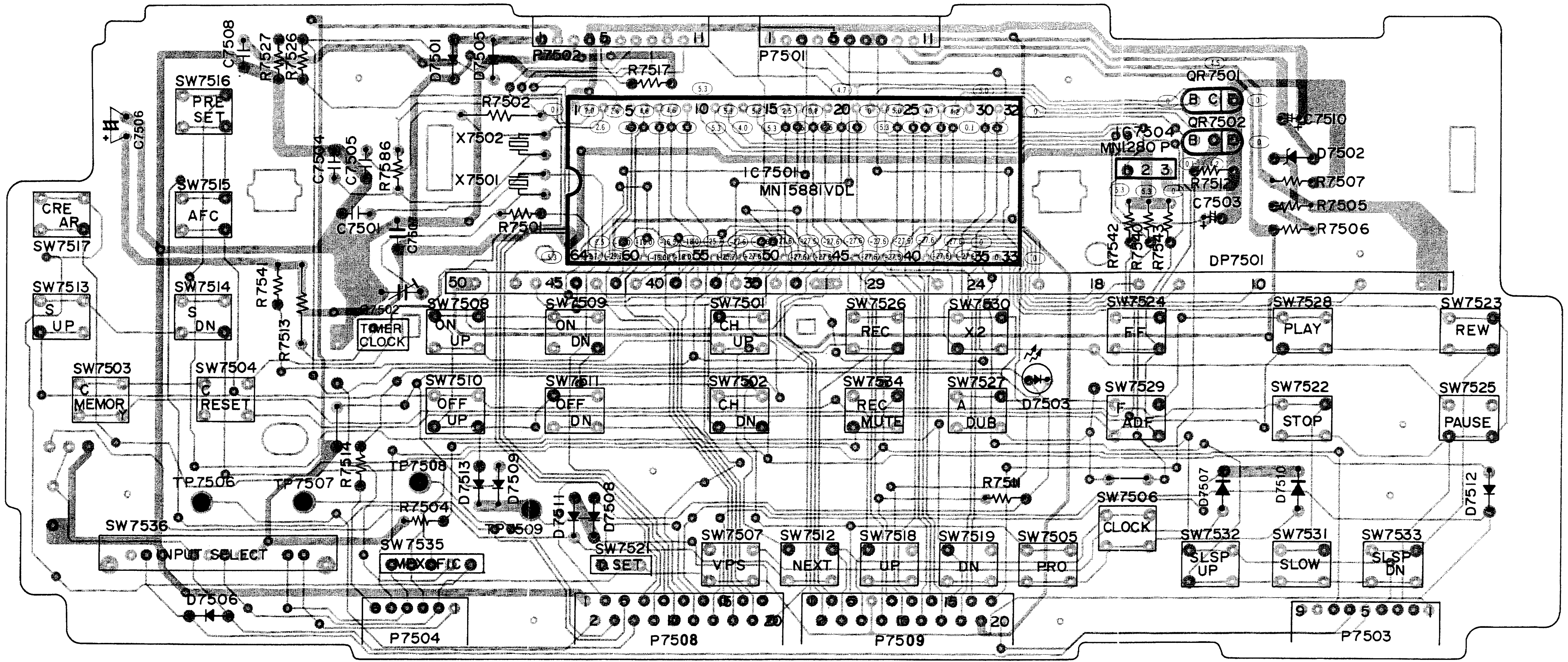

47K
B
C
E
47K
E C B

DTC144EA

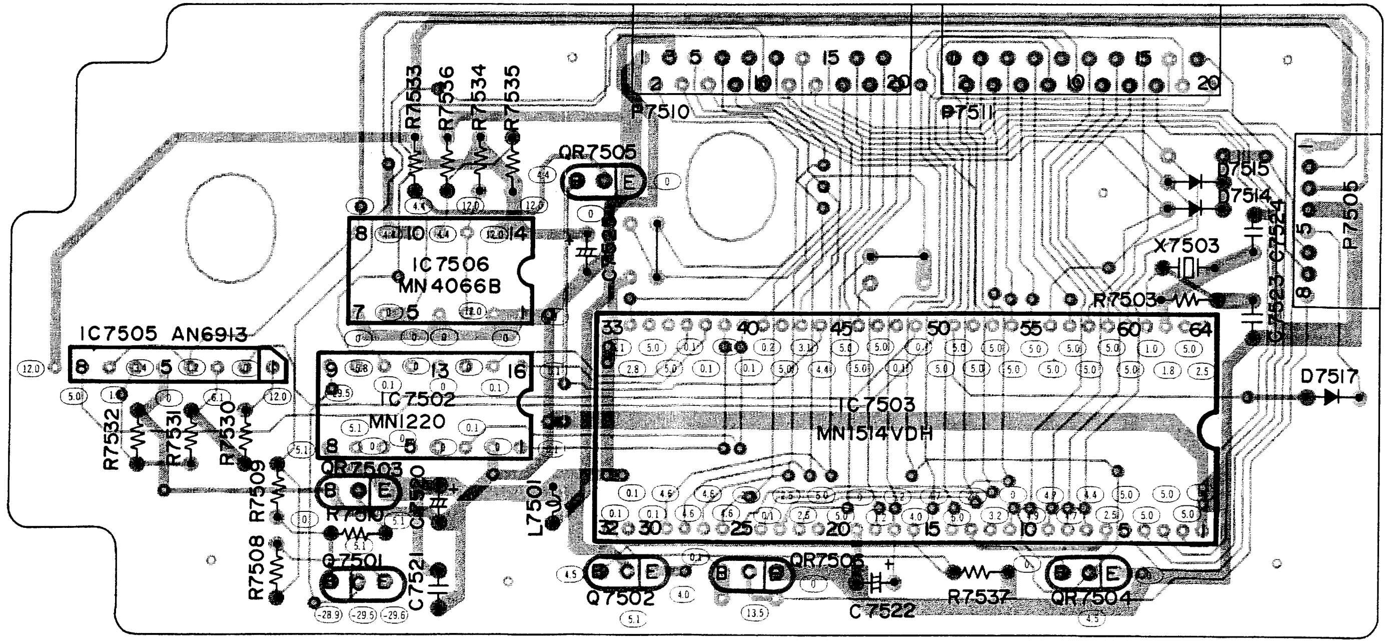

10K
B
C
E
10K
E C B

DTC114EA

TIMER C. BOARD (VEP07335A)


IC7501 MN15881VDL
IC7504 MN1280
QR7501
QR7502
DP7501
P7501
P7503
P7504
P7508
P7509
X7501
X7502
SW7516 PRE SET
SW7515 AFC
SW7517 CRE AR
SW7513 S UP
SW7514 S DN
SW7503 C MEMOR
SW7504 C RESET
TIMER CLOCK
SW7508 ON UP
SW7509 ON DN
SW7510 OFF UP
SW7511 OFF DN
SW7501 CH UP
SW7502 CH DN
SW7526 REC
SW7534 REC MUTE
SW7530 X2
SW7527 A DUB
SW7524 FF
SW7529 F ADF
SW7528 PLAY
SW7522 STOP
SW7523 REW
SW7525 PAUSE
SW7506 CLOCK
SW7536 INPUT SELECT
SW7535 MIX CFIC
SW7521 D SET
SW7507 VPS
SW7512 NEXT
SW7518 UP
SW7519 DN
SW7505 PRO
SW7532 SLSP UP
SW7531 SLOW
SW7533 SLSP DN
TP7505
TP7506
TP7507
TP7508
TP7509
D7501
D7502
D7503
D7505
D7506
D7507
D7508
D7509
D7510
D7511
D7512
D7513
C7501
C7502
C7503
C7504
C7505
C7506
C7508
C7510
R7501
R7502
R7504
R7505
R7506
R7507
R7511
R7512
R7513
R7514
R7517
R7527
R7542
R7586

SUB TIMER C. BOARD (VEP07336B)


IC7503 MN1514VDH
IC7506 MN4066B
IC7502 MN1220
IC7505 AN6913
QR7503
QR7504
QR7505
QR7506
Q7502
P7505
P7510
P7511
X7503
D7514
D7515
D7517
C7501
C7521
C7522
C7523
C7524
L7501
R7503
R7508
R7509
R7510
R7530
R7531
R7532
R7533
R7534
R7535
R7536
R7537

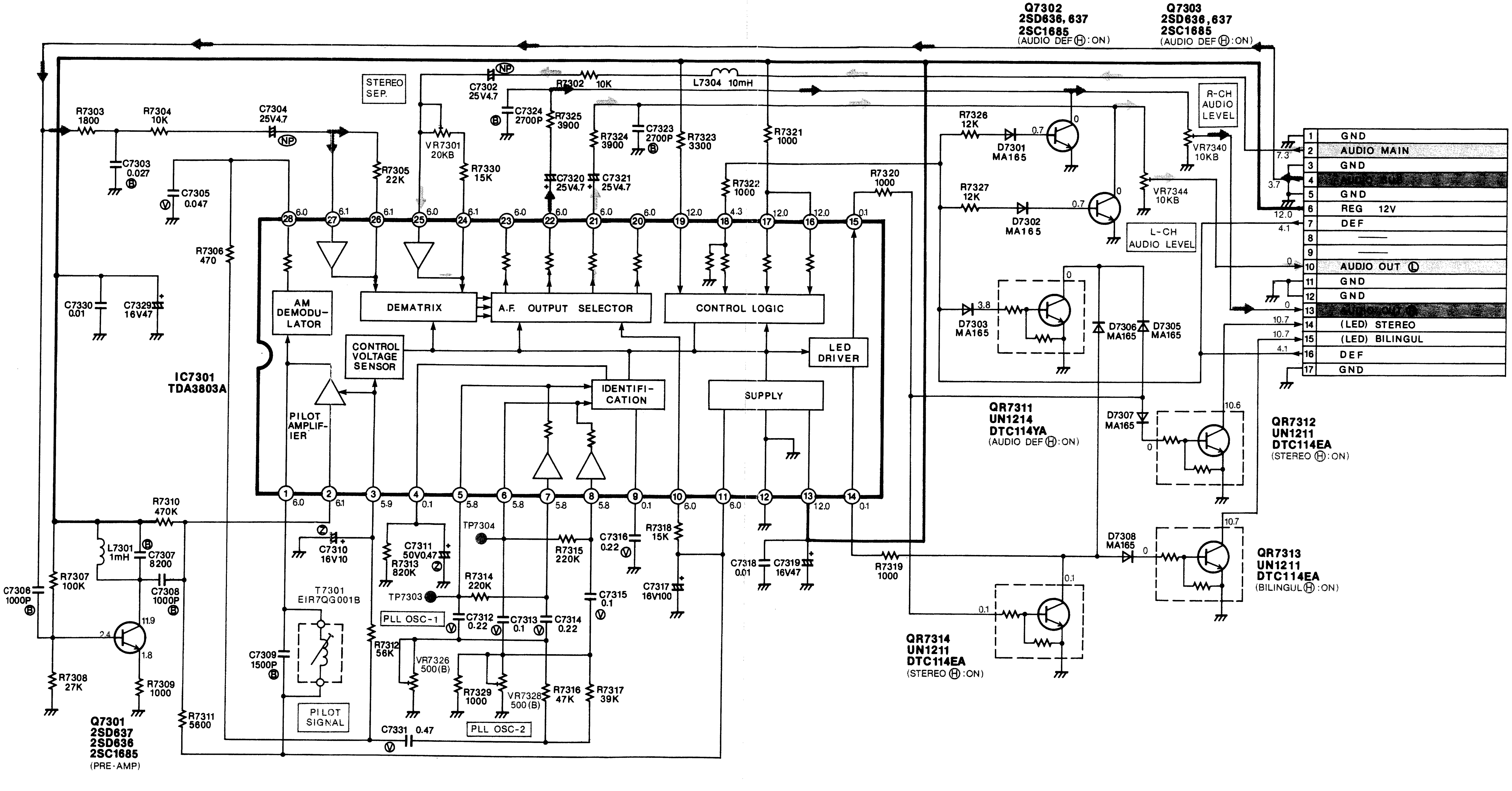
Gleichspannungen Tol. ± 15% mit Digitalvoltmeter gegen ⊥ gemessen.
1. SW 7506 = CLOCK
2. Timer-Anzeige = SUN 0:00

DC voltages tol. ± 15% measured with digital voltmeter against ⊥.
1. Mode Selector = CLOCK
2. Timer Display = SUN 0:00

Schaltbild der Dekoderplatine
Decoder Pack Schematic Diagram

Signalweg Audio-Hauptkanal
Audio main signal path

Signalweg Audio-Nebenkanal
Audio sub signal path

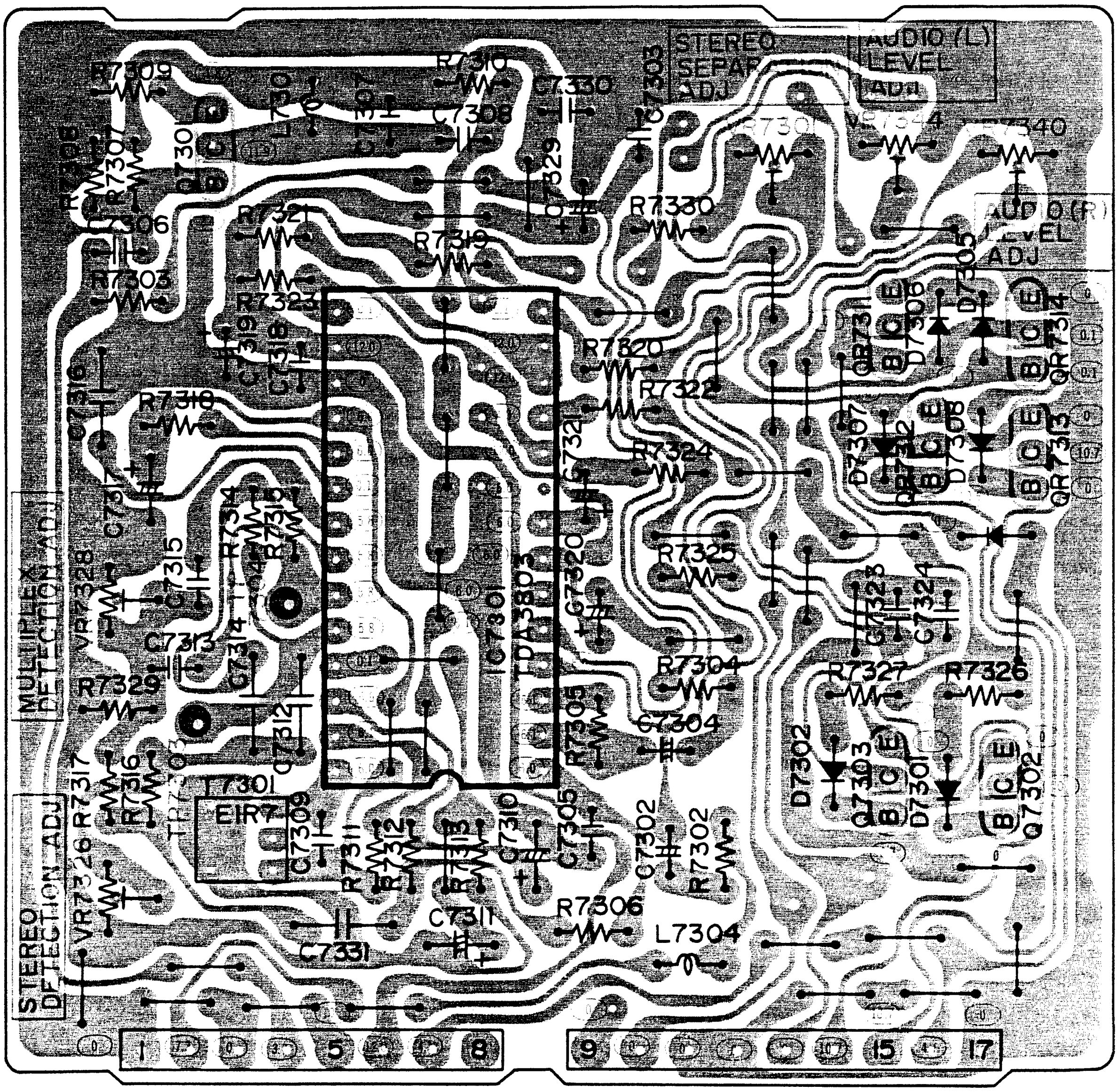


Q7302
2SD636, 637
2SC1685
(AUDIO DEF Ⓗ:ON)
Q7303
2SD636, 637
2SC1685
(AUDIO DEF Ⓗ:ON)
STEREO SEP.
R-CH AUDIO LEVEL
L-CH AUDIO LEVEL
R7303 1800
R7304 10K
C7303 0.027
C7304 25V4.7
C7305 0.047
C7302 25V4.7
R7302 10K
L7304 10mH
C7324 2700P
R7325 3900
VR7301 20KB
R7305 22K
R7330 15K
R7324 3900
C7323 2700P
R7323 3300
C7320 25V4.7
C7321 25V4.7
R7322 1000
R7321 1000
R7320 1000
R7326 12K
D7301 MA165
R7327 12K
D7302 MA165
VR7340 10KB
VR7344 10KB
D7303 MA165
D7306 MA165
D7305 MA165
R7306 470
C7330 0.01
C7329 16V47
AM DEMODULATOR
DEMATRIX
A.F. OUTPUT SELECTOR
CONTROL LOGIC
CONTROL VOLTAGE SENSOR
LED DRIVER
IDENTIFICATION
SUPPLY
PILOT AMPLIFIER
IC7301
TDA3803A
R7310 470K
L7301 1mH
C7307 8200
C7308 1000P
R7307 100K
C7306 1000P
R7308 27K
R7309 1000
R7311 5600
Q7301
2SD637
2SD636
2SC1685
(PRE-AMP)
C7310 16V10
C7311 50V0.47
R7313 820K
TP7304
TP7303
R7314 220K
R7315 220K
T7301 EIR7QG001B
PLL OSC-1
PLL OSC-2
PILOT SIGNAL
C7309 1500P
R7312 56K
VR7326 500(B)
R7329 1000
VR7328 500(B)
C7312 0.22
C7313 0.1
C7314 0.22
C7315 0.1
R7316 47K
R7317 39K
C7316 0.22
R7318 15K
C7317 16V100
C7318 0.01
C7319 16V47
R7319 1000
C7331 0.47
QR7311
UN1214
DTC114YA
(AUDIO DEF Ⓗ:ON)
D7307 MA165
QR7312
UN1211
DTC114EA
(STEREO Ⓗ:ON)
D7308 MA165
QR7313
UN1211
DTC114EA
(BILINGUL Ⓗ:ON)
QR7314
UN1211
DTC114EA
(STEREO Ⓗ:ON)
1 GND
2 AUDIO MAIN
3 GND
5 GND
6 REG 12V
7 DEF
10 AUDIO OUT Ⓛ
11 GND
12 GND
14 (LED) STEREO
15 (LED) BILINGUL
16 DEF
17 GND

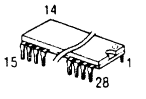
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

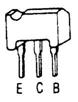
Dekoderplatine
Decoder Pack Circuit Board


STEREO SEPAR ADJ
AUDIO (L) LEVEL ADJ
AUDIO (R) LEVEL ADJ
MULTIPLEX DETECTION ADJ
STEREO DETECTION ADJ
R7309
R7310
C7330
C7307
C7308
C7303
C7329
R7308
R7307
D7301
C7306
R7303
R7321
R7319
R7330
R7301
VR7344
R7340
R7323
C7319
C7318
C7316
R7318
C7317
R7320
R7322
R7324
R7325
R7304
C7304
R7327
R7326
Q7311
D7306
D7305
Q7314
Q7307
Q7312
D7308
Q7313
D7307
C7321
C7320
C7323
C7324
IC7301
TDA3803
R7314
R7315
C7315
C7314
C7313
VR7328
R7329
C7312
R7305
T7301
EIR7
R7317
R7316
VR7326
C7309
R7311
R7312
R7313
C7310
C7305
C7302
R7302
R7306
L7304
C7311
C7331
D7302
Q7303
D7301
Q7302
1
5
8
9
15
17

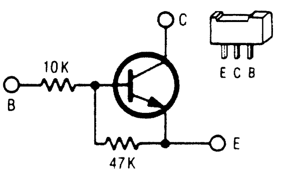
Halbleiter-Anschlußpunkte
Semi Conductor Connection



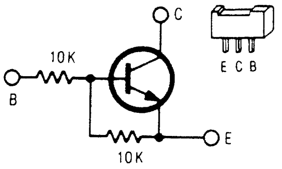
TDA3803A



2SD636

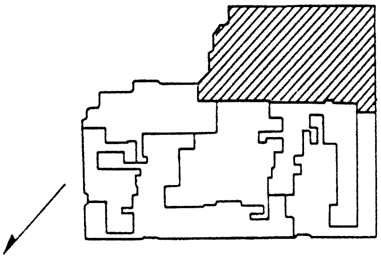

C
10K
B
47K
E
E C B

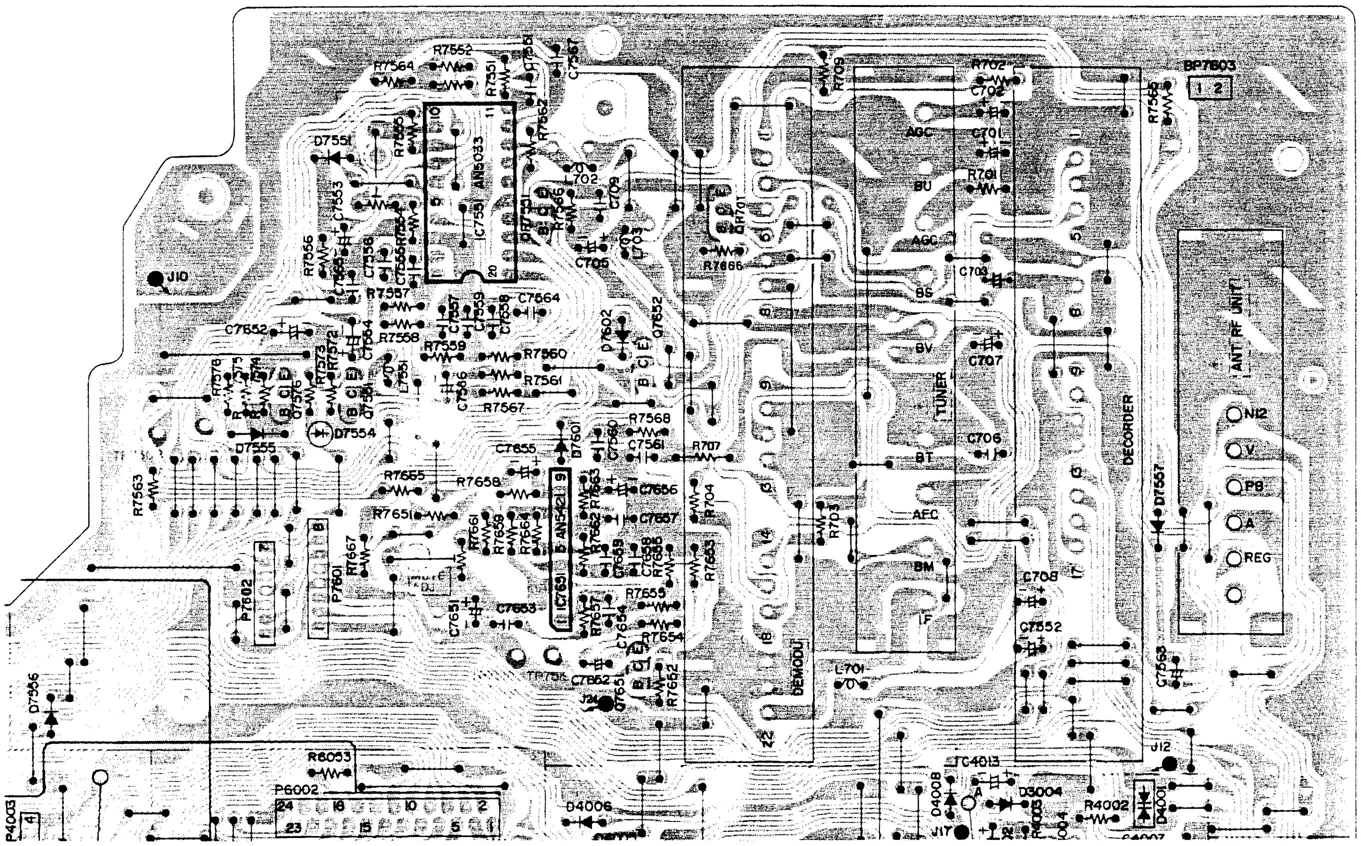
DTC114YA


C
10K
B
10K
E
E C B

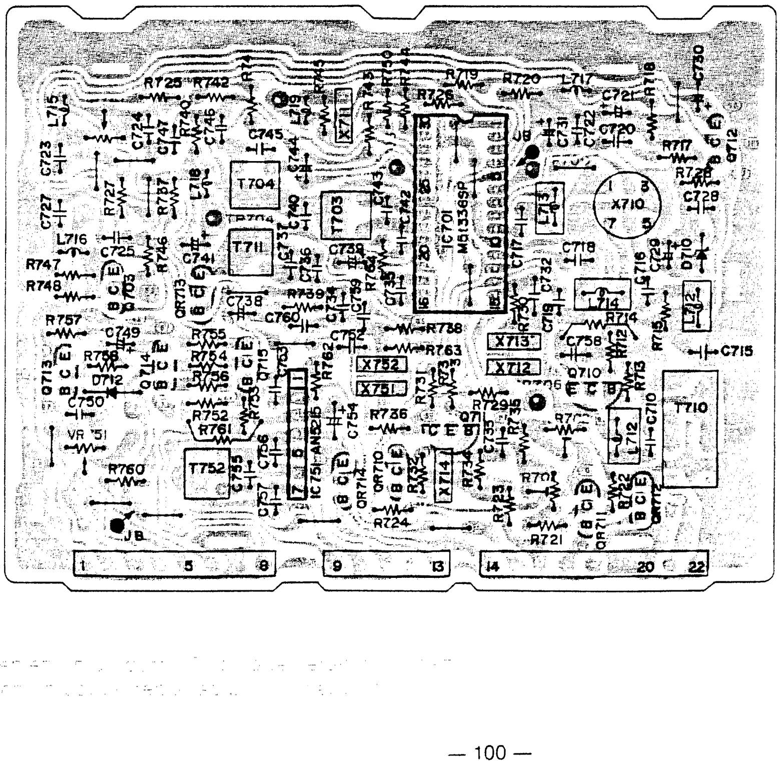
DTC114EA

Hauptplatine (HF und Bandumschaltungsteil)
Main Circuit Board (RF and Band Select Section)



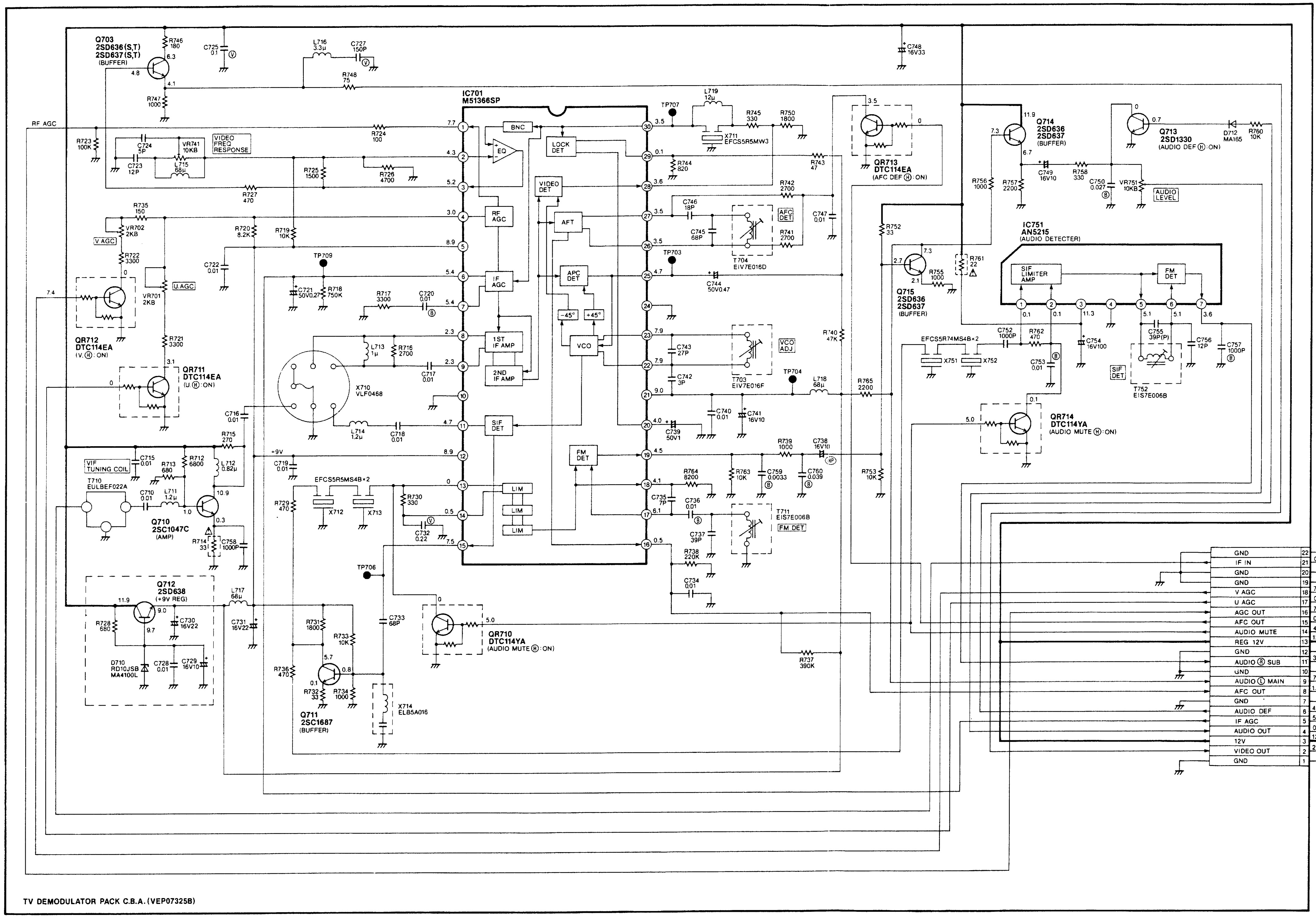

R7552
R7564
R7351
IC7351
AN5033
IC7551
D7551
R7555
C7553
R7556
C7558
C7557
R7557
C7564
C7652
R7558
R7559
R7560
R7561
R7567
D7554
D7555
R7563
P7602
P7601
R7667
R7655
R7658
R7651
C7655
IC7651
AN5421
D7501
C7561
R7568
R7707
R704
R703
C7656
C7657
R7653
R7655
R7654
C7653
C7651
C7652
TP751
J24
R7652
Q7652
D7652
R7666
QR701
R709
R702
C702
C701
R701
C703
C707
C706
C708
C7552
AGC
BU
BS
BV
BT
AFC
BM
IF
TUNER
DECORDER
DEMODU
BP7803
R7566
ANT RF UNIT
N12
V
PB
A
REG
D7557
C7563
L701
J10
J12
J17
D7556
R6053
P6002
P4003
D4006
D4008
TC4013
D5004
R4002
D4001
24
18
10
2
23
15
5
C7567
C7562

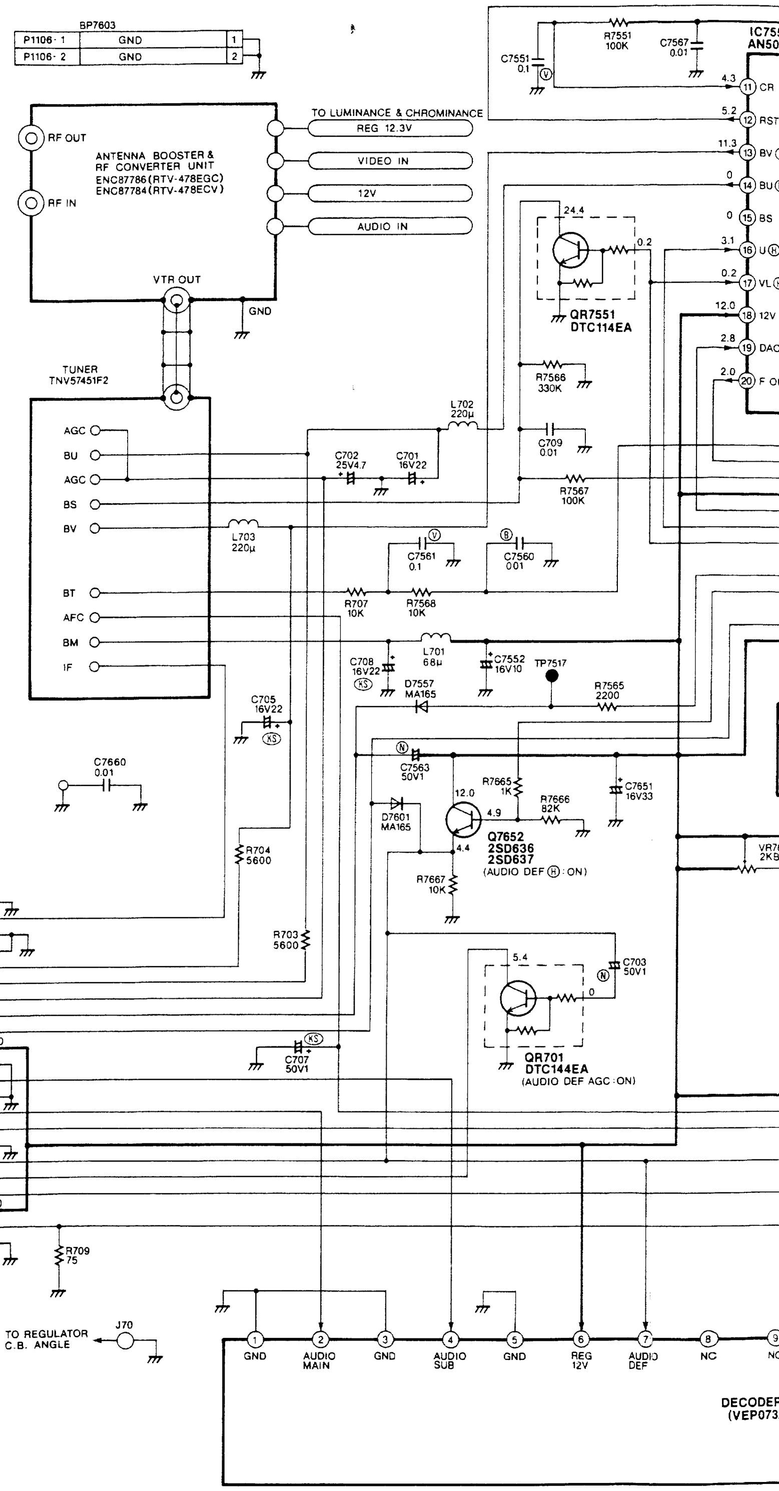
TV-Demodulator-Platine
TV Demodulator Pack Circuit Board


R725
R742
R743
R750
R744
R719
R720
L717
R718
C730
L715
C723
C724
C747
R740
C746
C745
C744
L719
X711
R726
C721
C731
C722
C720
J9
R717
R729
Q712
C728
C727
R727
R737
L718
T704
T703
C743
C742
IC701
M51336SP
L713
X710
T711
C740
C737
C739
C741
C736
C738
C760
R739
L716
C725
R746
R747
R748
Q703
QR713
C717
C718
C732
L714
C716
C729
D710
L712
R757
C749
Q713
R758
D712
C750
Q714
R755
R754
R756
Q715
R753
R752
R761
R762
C751
X752
X751
R763
R738
X713
X712
C758
R714
C715
Q710
R713
R715
C710
T710
VR751
R760
T752
C755
C756
C757
C754
IC751
AN5215
R736
R731
R733
R7295
R735
Q701
QR710
QR714
X714
R734
R723
R724
R701
R721
QR711
R722
QR712
J8
1
5
8
9
13
14
20
22

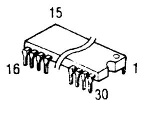
Schaltbild TV-Demodulator, HF und Bandumschaltung
TV Demodulator, RF and Band Select Schematic Diagram

Sch
TV

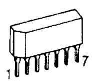

IC701 M51366SP
Q703 2SD636(S,T) 2SD637(S,T) (BUFFER)
RF AGC
VIDEO FREQ RESPONSE
V.AGC
U.AGC
QR712 DTC114EA (V.Ⓗ ON)
QR711 DTC114EA (U Ⓗ ON)
VIF TUNING COIL T710 EULBEF022A
Q710 2SC1047C (AMP)
Q712 2SD638 (+9V REG)
D710 RD10JSB MA4100L
X710 VLF0468
EFCS5R5MS4B×2
Q711 2SC1687 (BUFFER)
X714 ELB5A016
QR710 DTC114YA (AUDIO MUTE Ⓗ ON)
BNC
EQ
LOCK DET
VIDEO DET
RF AGC
AFT
APC DET
IF AGC
VCO
1ST IF AMP
2ND IF AMP
SIF DET
FM DET
LIM
X711 EFCS5R5MW3
AFC DET
T704 EIV7E016D
VCO ADJ
T703 EIV7E016F
T711 EIS7E006B
FM DET
TP707
TP703
TP709
TP706
TP704
QR713 DTC114EA (AFC DEF Ⓗ ON)
Q714 2SD636 2SD637 (BUFFER)
Q713 2SD1330 (AUDIO DEF Ⓗ ON)
D712 MA165
AUDIO LEVEL
IC751 AN5215 (AUDIO DETECTER)
SIF LIMITER AMP
FM DET
Q715 2SD636 2SD637 (BUFFER)
EFCS5R74MS4B×2
SIF DET
T752 EIS7E006B
QR714 DTC114YA (AUDIO MUTE Ⓗ ON)
GND
IF IN
GND
GND
V AGC
U AGC
AGC OUT
AFC OUT
AUDIO MUTE
REG 12V
GND
AUDIO Ⓑ SUB
GND
AUDIO Ⓛ MAIN
AFC OUT
GND
AUDIO DEF
IF AGC
AUDIO OUT
12V
VIDEO OUT
GND
TV DEMODULATOR PACK C.B.A. (VEP07325B)


BP7603
P1106-1 GND 1
P1106-2 GND 2
RF OUT
RF IN
ANTENNA BOOSTER & RF CONVERTER UNIT ENC87786(RTV-478EGC) ENC87784(RTV-478ECV)
TO LUMINANCE & CHROMINANCE
REG 12.3V
VIDEO IN
12V
AUDIO IN
VTR OUT
GND
TUNER TNV57451F2
AGC
BU
AGC
BS
BV
BT
AFC
BM
IF
QR7551 DTC114EA
Q7652 2SD636 2SD637 (AUDIO DEF Ⓗ ON)
QR701 DTC144EA (AUDIO DEF AGC ON)
D7601 MA165
D7557 MA165
TP7517
TO REGULATOR C.B. ANGLE
J70
GND
AUDIO MAIN
GND
AUDIO SUB
GND
REG 12V
AUDIO DEF
NC
DECODEF (VEP073

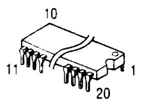
Halbleiter-Anschlußpunkte
Semi Conductor Connection



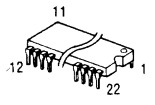
M51366SP



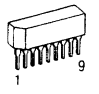
AN5215



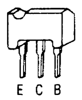
AN5033



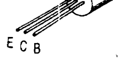
BN5115B



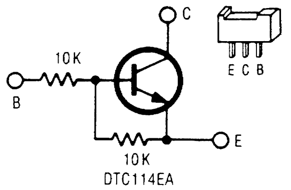
AN5421

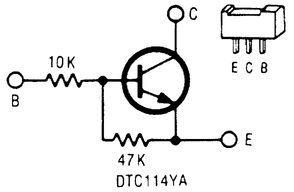


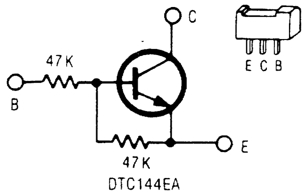
2SD636
2SD638
2SD1330
2SB641
2SB644



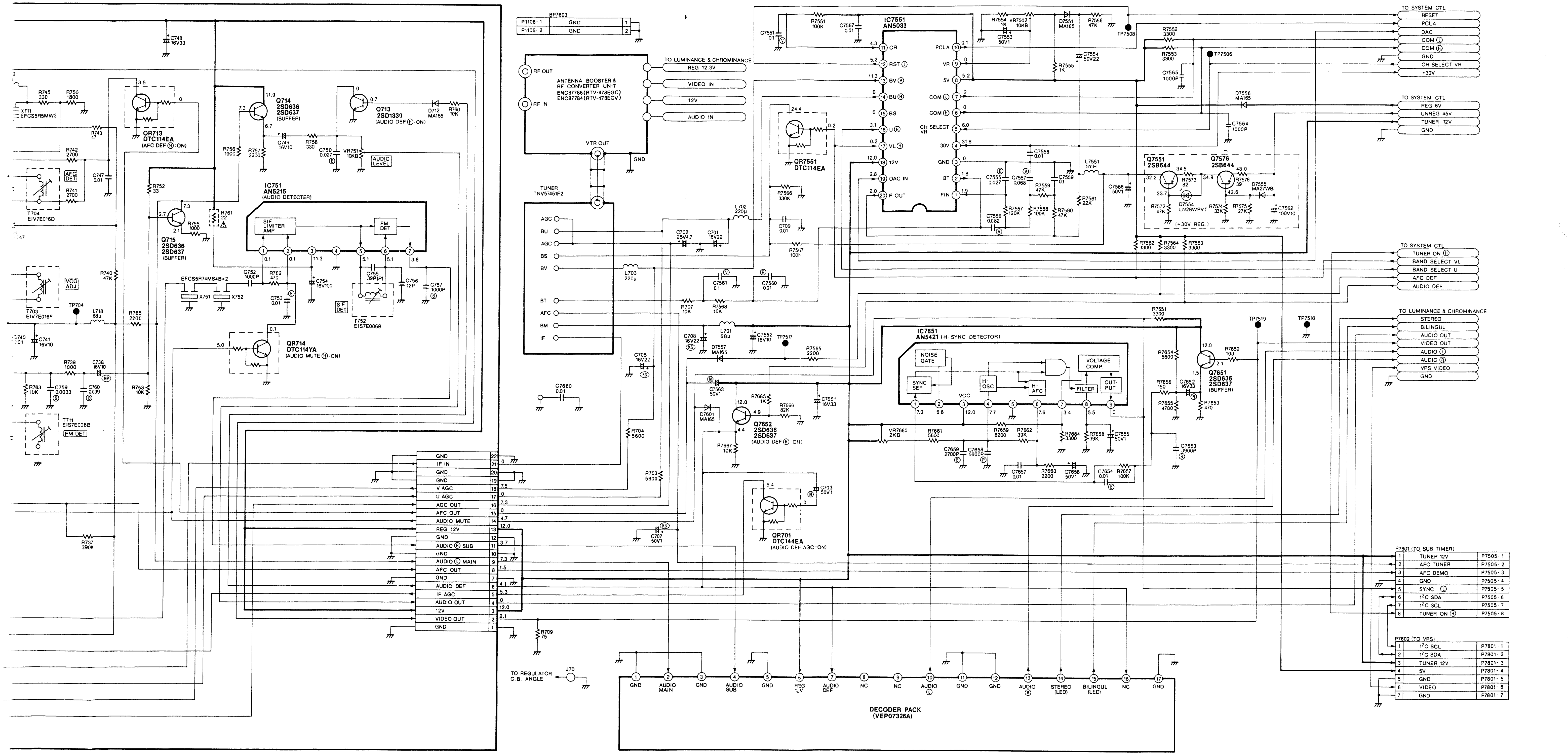
2SC1047C
2SC1687

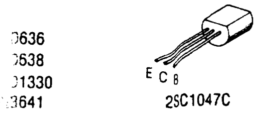

10K
B
C
E
10K
E C B
DTC114EA

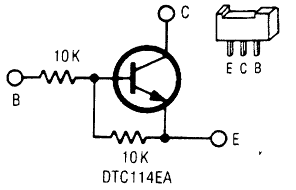

10K
B
C
E
47K
E C B
DTC114YA

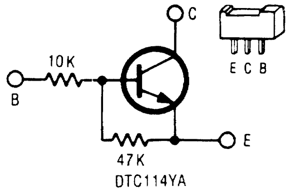

47K
B
C
E
47K
E C B
DTC144EA

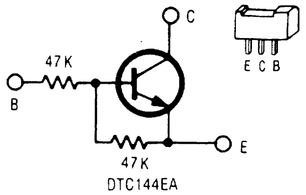
Schaltbild TV-Demodulator, HF und Bandumschaltung
TV Demodulator, RF and Band Select Schematic Diagram


BP7603
P1106 · 1 GND
P1106 · 2 GND
RF OUT
RF IN
ANTENNA BOOSTER & RF CONVERTER UNIT
ENC87786(RTV-478EGC)
ENC87784(RTV-478ECV)
VTR OUT
TO LUMINANCE & CHROMINANCE
REG 12.3V
VIDEO IN
12V
AUDIO IN
TUNER TNV57451F2
AGC
BU
AGC
BS
BV
BT
AFC
BM
IF
Q714 2SD636 2SD637 (BUFFER)
QR713 DTC114EA (AFC DEF Ⓗ:ON)
Q713 2SD1330 (AUDIO DEF Ⓗ:ON)
AUDIO LEVEL
IC751 AN5215 (AUDIO DETECTER)
SIF LIMITER AMP
FM DET
SIF DET
T752 EIS7E006B
Q715 2SD636 2SD637 (BUFFER)
QR714 DTC114YA (AUDIO MUTE Ⓗ:ON)
AFC DET
VCO ADJ
FM DET
T704 EIV7E016D
T703 EIV7E016F
T711 EIS7E006B
X711 EFCS5R5MW3
EFCS5R74MS4B×2
TP704
GND
IF IN
GND
GND
V AGC
U AGC
AGC OUT
AFC OUT
AUDIO MUTE
REG 12V
GND
AUDIO Ⓡ SUB
GND
AUDIO Ⓛ MAIN
AFC OUT
GND
AUDIO DEF
IF AGC
AUDIO OUT
12V
VIDEO OUT
GND
TO REGULATOR C.B. ANGLE
J70
IC7551 AN5033
CR
RST Ⓛ
BV Ⓗ
BU Ⓗ
BS
U Ⓗ
VL Ⓗ
12V
DAC IN
F OUT
PCLA
VR
5V
COM Ⓛ
COM Ⓗ
CH SELECT VR
30V
GND
BT
FIN
QR7551 DTC114EA
TP7508
TP7506
Q7551 2SB644
Q7576 2SB644
D7554 LN28WPVT
D7555 MA27WB
(+30V REG.)
L7551 1mH
TO SYSTEM CTL
RESET
PCLA
DAC
COM Ⓛ
COM Ⓗ
GND
CH SELECT VR
+30V
TO SYSTEM CTL
REG 6V
UNREG 45V
TUNER 12V
GND
TO SYSTEM CTL
TUNER ON Ⓗ
BAND SELECT VL
BAND SELECT U
AFC DEF
AUDIO DEF
TO LUMINANCE & CHROMINANCE
STEREO
BILINGUL
AUDIO OUT
VIDEO OUT
AUDIO Ⓛ
AUDIO Ⓡ
VPS VIDEO
GND
IC7651 AN5421 (H-SYNC DETECTOR)
NOISE GATE
SYNC SEP
H-OSC
H-AFC
VOLTAGE COMP
FILTER
OUT-PUT
VCC
Q7651 2SD636 2SD637 (BUFFER)
Q7652 2SD636 2SD637 (AUDIO DEF Ⓗ:ON)
QR701 DTC144EA (AUDIO DEF AGC:ON)
TP7517
TP7519
TP7518
P7601 (TO SUB TIMER)
1 TUNER 12V P7505·1
2 AFC TUNER P7505·2
3 AFC DEMO P7505·3
4 GND P7505·4
5 SYNC Ⓛ P7505·5
6 I²C SDA P7505·6
7 I²C SCL P7505·7
8 TUNER ON Ⓗ P7505·8
P7602 (TO VPS)
1 I²C SCL P7801·1
2 I²C SDA P7801·2
3 TUNER 12V P7801·3
4 5V P7801·4
5 GND P7801·5
6 VIDEO P7801·6
7 GND P7801·7
DECODER PACK (VEP07326A)
1 GND
2 AUDIO MAIN
3 GND
4 AUDIO SUB
5 GND
6 REG 12V
7 AUDIO DEF
8 NC
9 NC
10 AUDIO Ⓛ
11 GND
12 GND
13 AUDIO Ⓡ
14 STEREO (LED)
15 BILINGUL (LED)
16 NC
17 GND


636
638
1330
641
644
E C B
2SC1047C
2SC1687

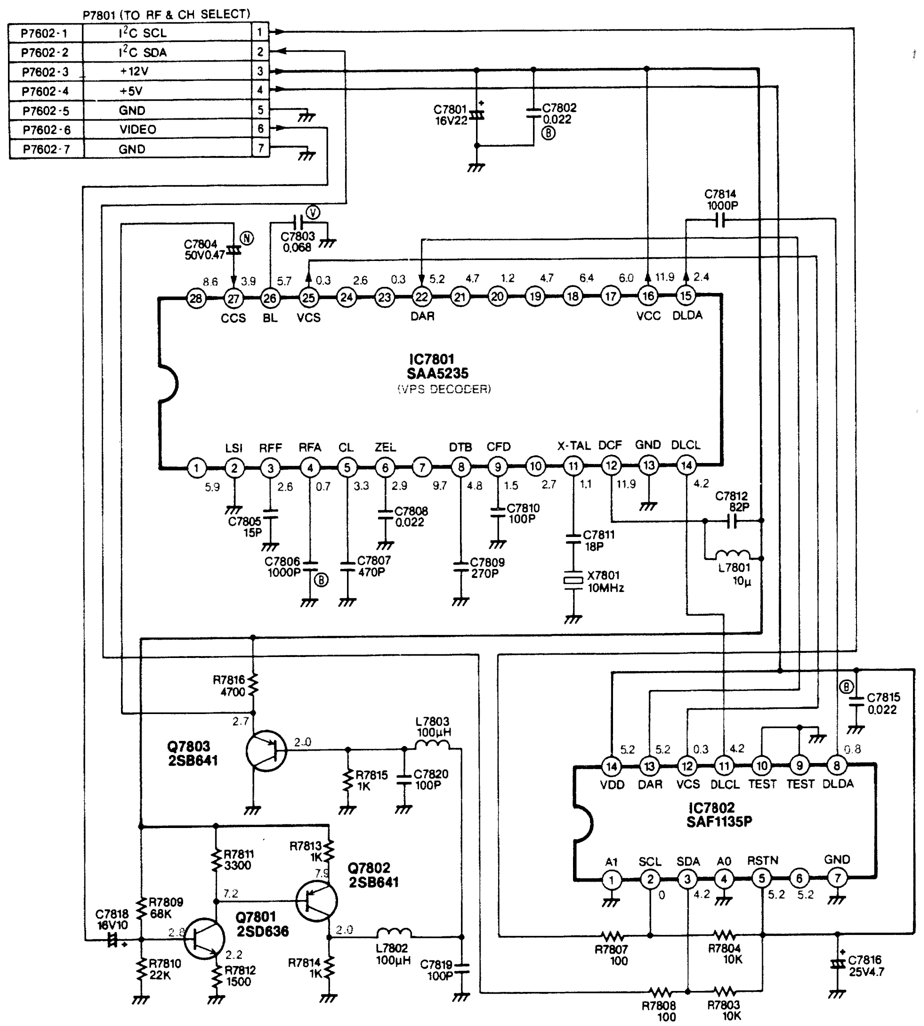

10K
B
C
E
10K
E C B
DTC114EA


10K
B
C
E
47K
E C B
DTC114YA


47K
B
C
E
47K
E C B
DTC144EA

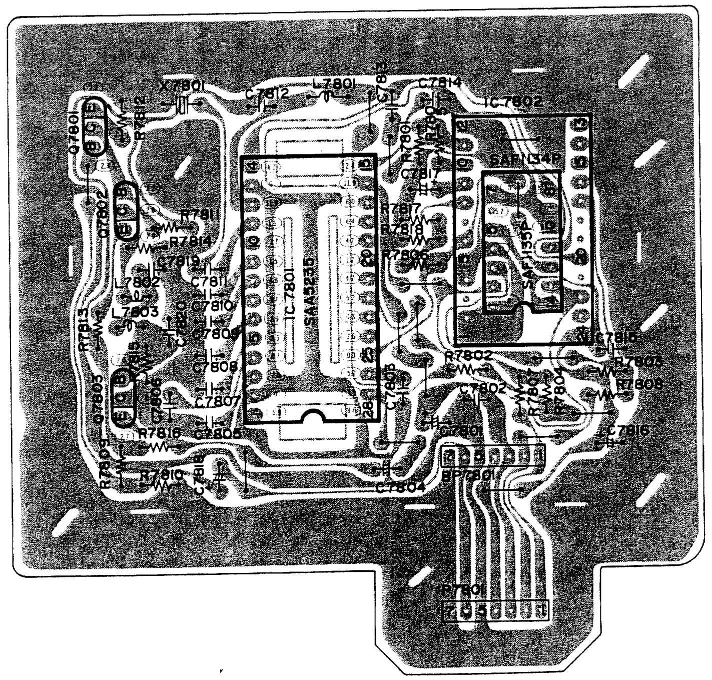
Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

Schaltbild VPS
VPS Schematic Diagram

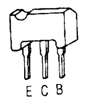

P7801 (TO RF & CH SELECT)
P7602-1 I²C SCL
P7602-2 I²C SDA
P7602-3 +12V
P7602-4 +5V
P7602-5 GND
P7602-6 VIDEO
P7602-7 GND
IC7801
SAA5235
(VPS DECODER)
IC7802
SAF1135P
Q7801
2SD636
Q7802
2SB641
Q7803
2SB641
X7801
10MHz
L7801
10µ
L7802
100µH
L7803
100µH

Gleichspannungen Tol. ± 15 % mit Digitalvoltmeter gegen ⊥ gemessen (Betriebsart „Stop").
DC voltages tol. ± 15 % measured with digital voltmeter against ⊥ (Stop mode).

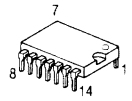
VPS-Platine
VPS Circuit Board


IC7801
SAA5235
IC7802
SAF1135P
X7801

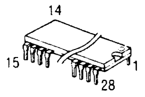
Halbleiter-Anschlußpunkte
Semi Conductor Connection



2SD636
2SB641



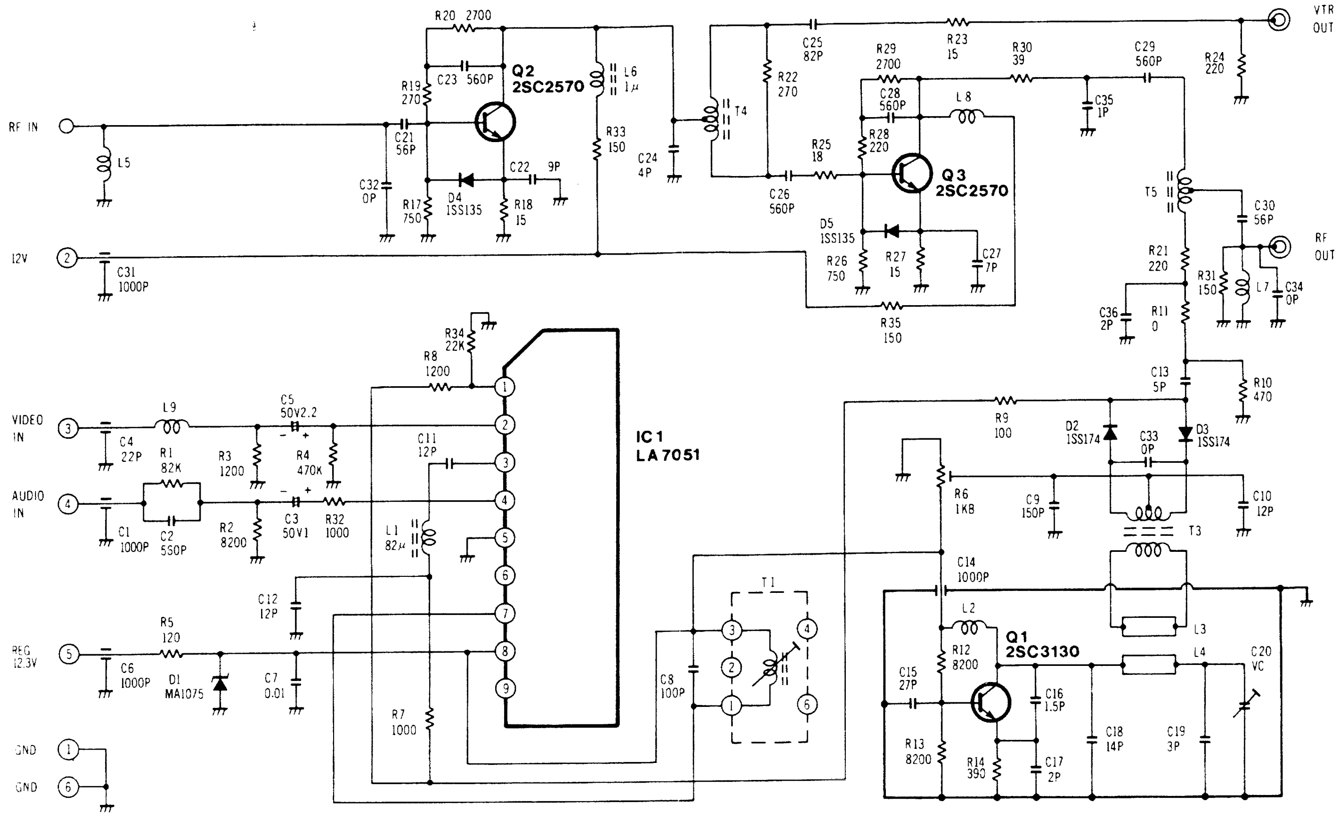
SAF1135P



SAA5235

Schaltbild HF-Konverter und Ant.-Anschluß
RF Converter and Ant. Terminal Schematic Diagram

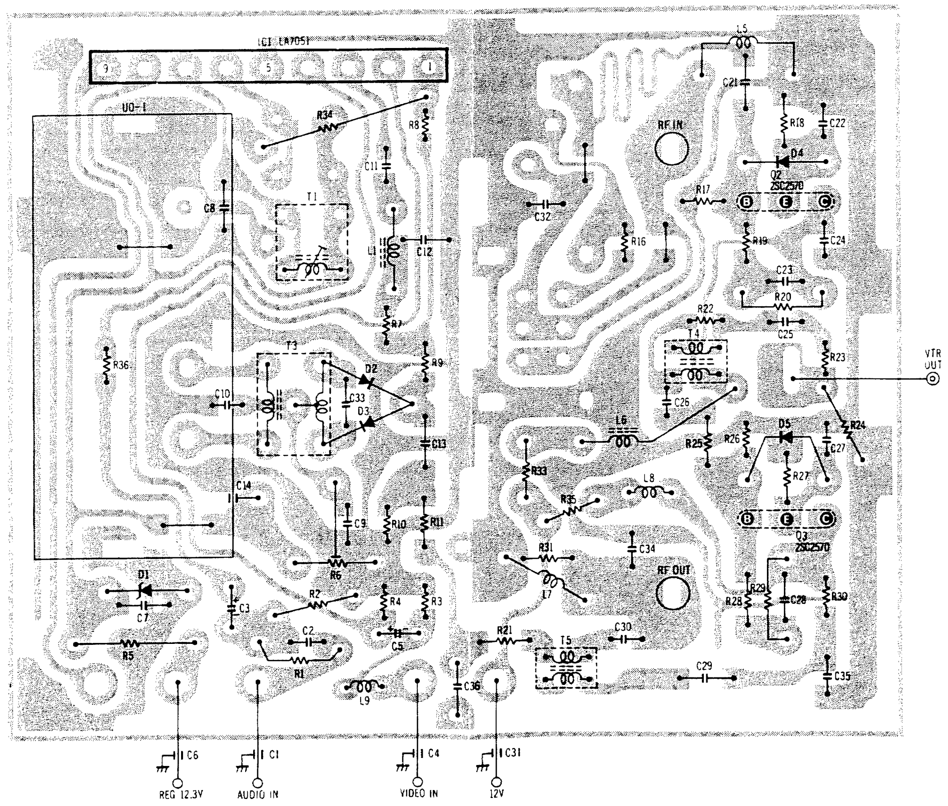
RTV-478 EGC


RF IN
12V
VIDEO IN
AUDIO IN
REG 12.3V
GND
GND
VTR OUT
RF OUT
IC1
LA7051
Q1
2SC3130
Q2
2SC2570
Q3
2SC2570
T1
T3
T4
T5

Für Werte ohne Bezeichnung F (µF) oder Ω einsetzen.
Read F (µF) or Ω, respectively unless otherwise noted.

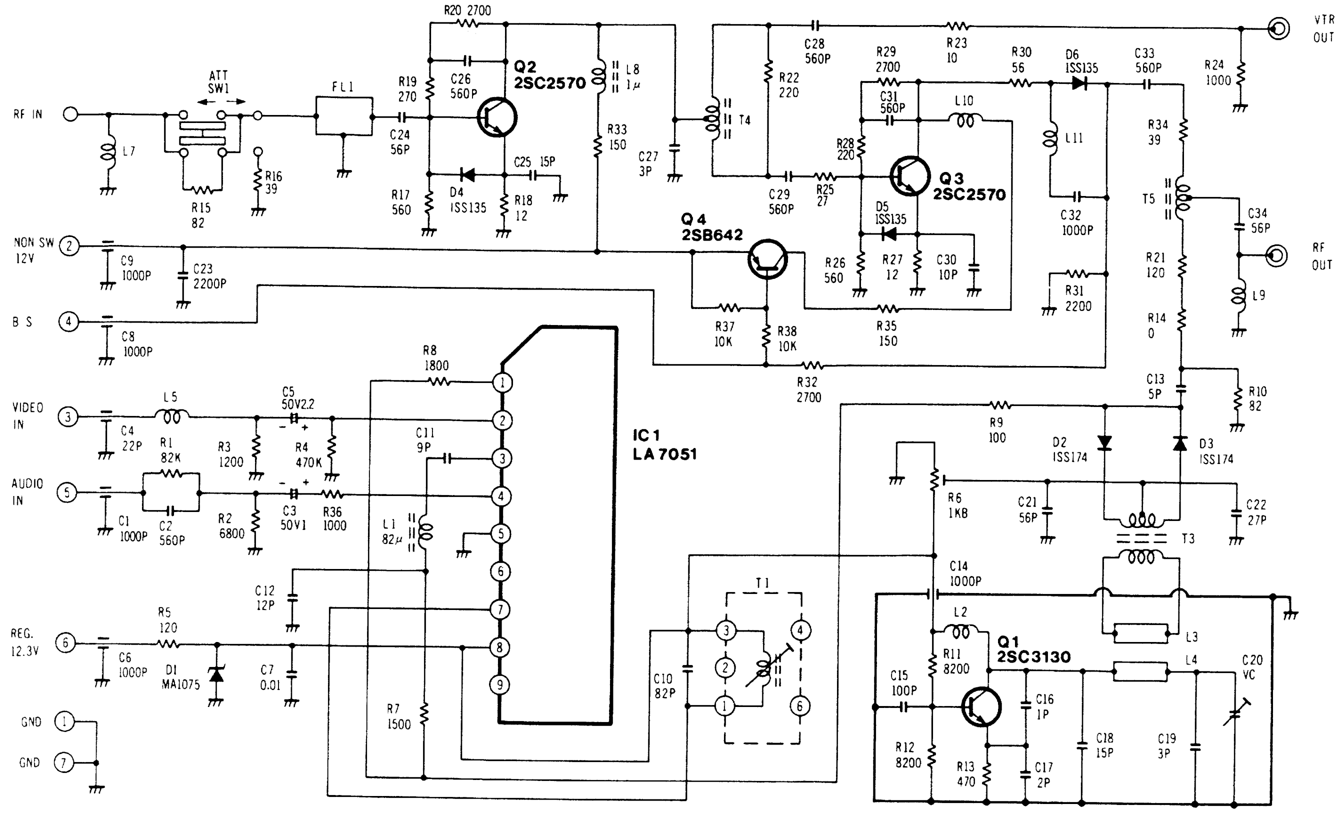
HF-Konverter- und Ant.-Anschluß-Platine
RF Converter and Ant. Terminal Board

RTV-478 EGC


IC1 LA7051
RF IN
RF OUT
VTR OUT
REG 12.3V
AUDIO IN
VIDEO IN
12V

Schaltbild HF-Konverter und Ant.-Anschluß
RF Converter and Ant. Terminal Schematic Diagram

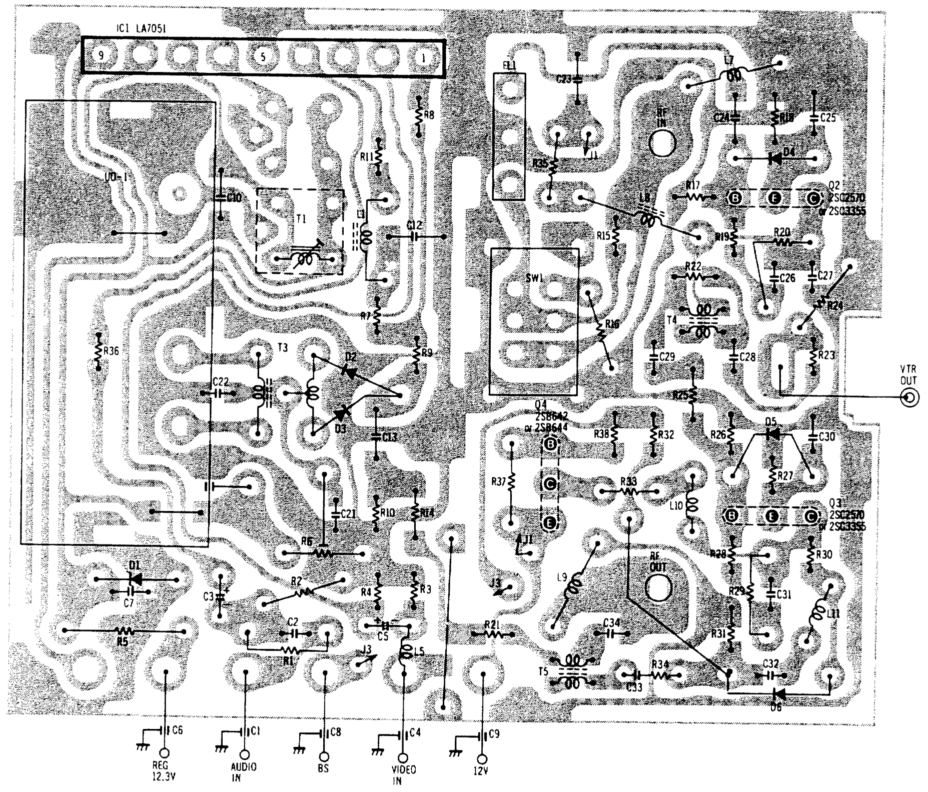
RTV-478 ECV


RF IN
ATT SW1
FL1
L7
R15 82
R16 39
R20 2700
R19 270
C26 560P
Q2 2SC2570
L8 1μ
C24 56P
C25 15P
D4 1SS135
R17 560
R18 12
R33 150
C27 3P
T4
C28 560P
R22 220
R29 2700
R23 10
R30 56
D6 1SS135
C33 560P
R24 1000
VTR OUT
C31 560P
L10
L11
R28 220
C29 560P
R25 27
Q3 2SC2570
D5 1SS135
R26 560
R27 12
C30 10P
C32 1000P
R31 2200
R34 39
T5
C34 56P
RF OUT
R21 120
L9
R14 0
Q4 2SB642
R37 10K
R38 10K
R35 150
R32 2700
NON SW 12V ②
C9 1000P
C23 2200P
B S ④
C8 1000P
VIDEO IN ③
L5
C4 22P
R1 82K
R3 1200
C5 50V2.2
R4 470K
R8 1800
C11 9P
AUDIO IN ⑤
C1 1000P
C2 560P
R2 6800
C3 50V1
R36 1000
L1 82μ
IC1 LA7051
C12 12P
REG. 12.3V ⑥
R5 120
C6 1000P
D1 MA1075
C7 0.01
R7 1500
GND ①
GND ⑦
C10 82P
T1
C13 5P
R10 82
R9 100
D2 1SS174
D3 1SS174
R6 1KB
C21 56P
C22 27P
T3
C14 1000P
L2
R11 8200
Q1 2SC3130
L3
L4
C20 VC
C15 100P
C16 1P
C18 15P
C19 3P
R12 8200
R13 470
C17 2P

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

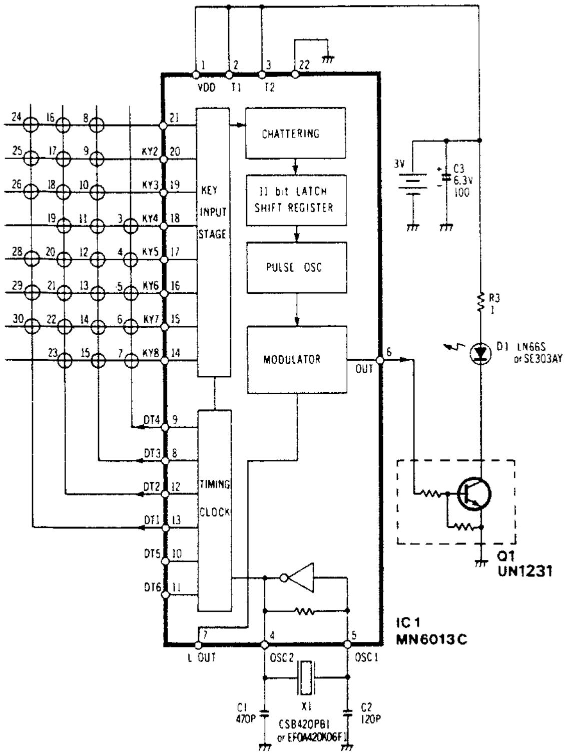
HF-Konverter- und Ant.-Anschluß-Platine
RF Converter and Ant. Terminal Board

RTV-478 ECV

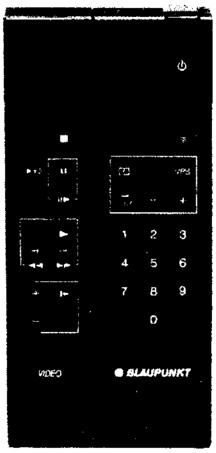

IC1 LA7051
FL1
SW1
T1
T3
T4
T5
Q2 2SC2570 or 2SC3355
Q3 2SC2570 or 2SC3355
Q4 2SB642 or 2SB644
VTR OUT
RF OUT
C6
REG 12.3V
C1
AUDIO IN
C8
BS
C4
VIDEO IN
C9
12V

Schaltbild Infrarot-Fernbedienung
Infrared Remote Controller Schematic Diagram

8 619 491 803

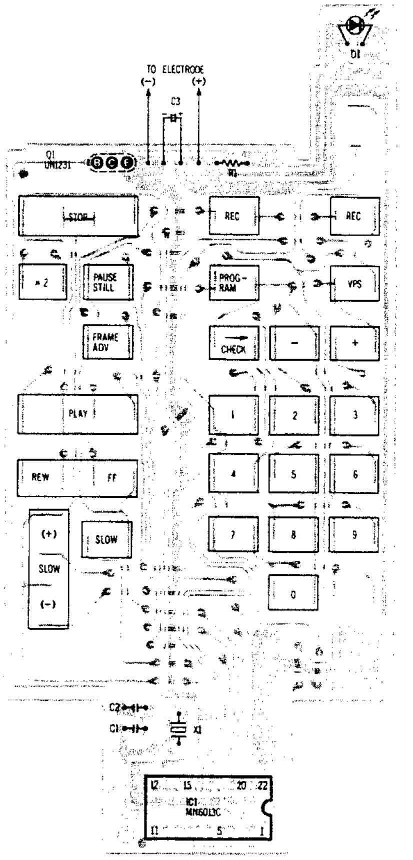

VDD
T1
T2
KY2
KY3
KY4
KY5
KY6
KY7
KY8
KEY INPUT STAGE
CHATTERING
11 bit LATCH SHIFT REGISTER
PULSE OSC
MODULATOR
OUT
TIMING CLOCK
DT1
DT2
DT3
DT4
DT5
DT6
L OUT
OSC2
OSC1
3V
C3 6.3V 100
R3 1
D1 LN66S or SE303AY
Q1 UN1231
IC1 MN6013C
C1 470P
X1 CSB420PB1 or EFOA420K06F1
C2 120P

KEY NO.	FUNCTION
3	PROGRAM
4	SET DOWN
5	SET UP
6	NEXT
7	VPS
8	F.ADV
9	PAUSE/STILL
10	FF/SEARCH
11	REW/SEARCH
12	POWER
13	CH1
14	CH4
15	CH7
16	SLOW SPEED UP
17	SLOW SPEED DOWN
18	STOP
19	PLAY
20	CH2
21	CH5
22	CH8
23	CH0
24	REC
25	X2
26	SLOW
28	CH3
29	CH6
30	CH9

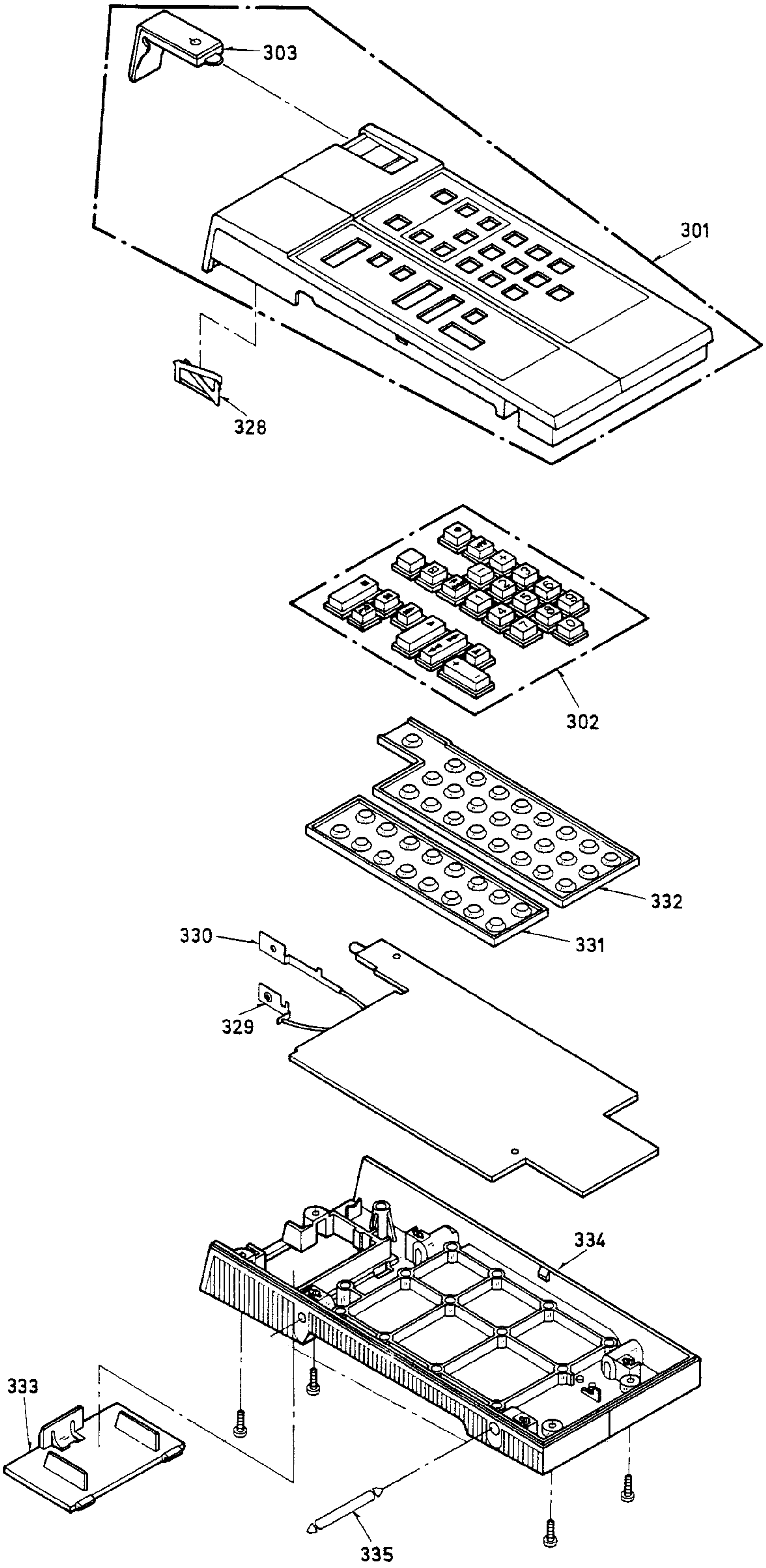

VIDEO
BLAUPUNKT

Für Werte ohne Bezeichnung F (μF) oder Ω einsetzen.
Read F (μF) or Ω, respectively unless otherwise noted.

Platine der Infrarot-Fernbedienung
IR Remote Controller Circuit Board


D1
TO ELECTRODE
(−)
(+)
C3
Q1
UN1231
R3
STOP
REC
REC
×2
PAUSE STILL
PROG-RAM
VPS
FRAME ADV
CHECK
−
+
PLAY
1
2
3
REW
FF
4
5
6
(+)
SLOW
(−)
SLOW
7
8
9
0
C2
C1
X1
IC1
MN6013C
12
15
20
22
11
5
1

Explosionszeichnung Fernbedienung
Exploded View IR Remote Control


303
301
328
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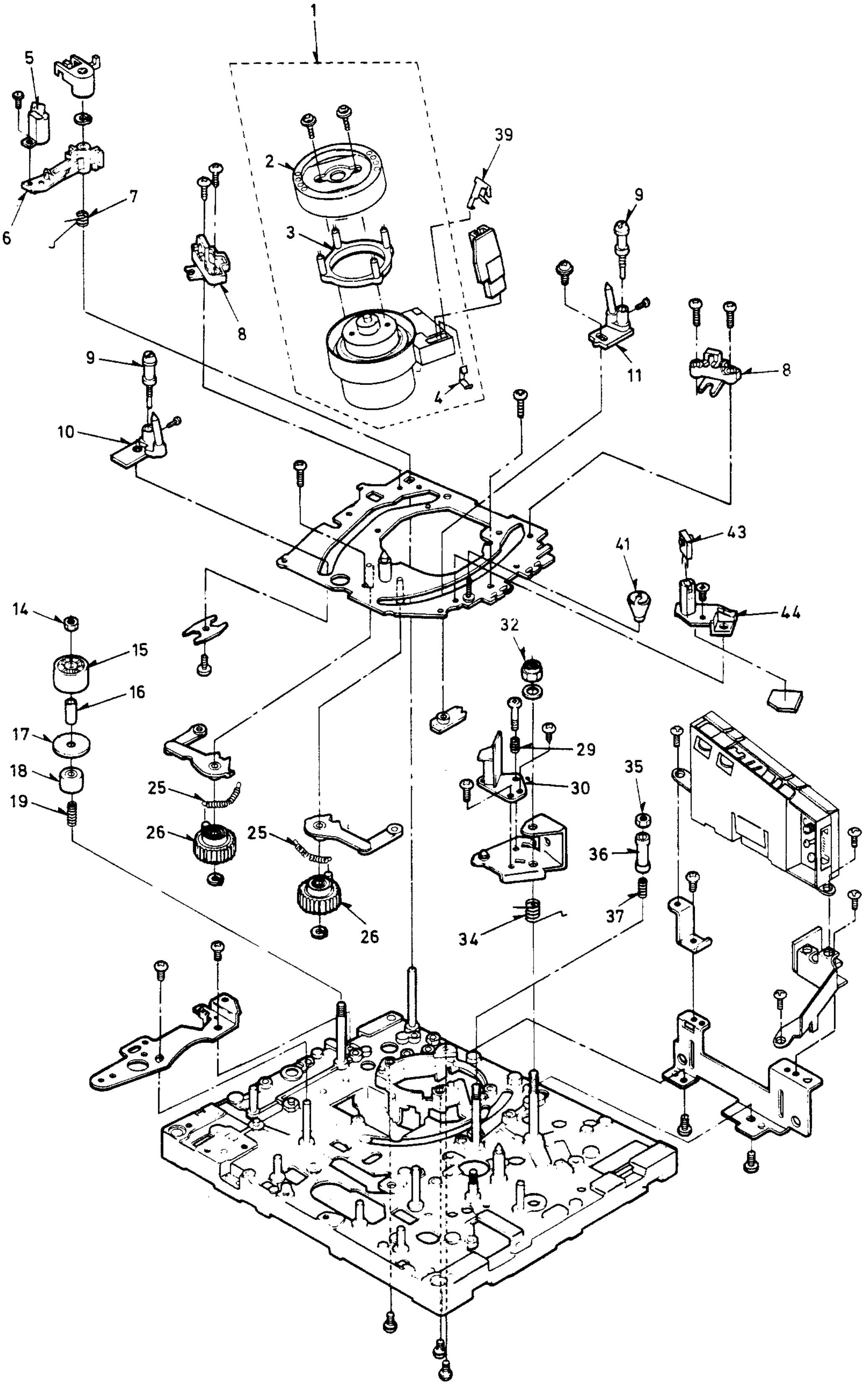
Lfd. Nr. Item no.	Bestell-Nr. Part no.
301	8 619 401 067
302	8 627 105 090
303	8 619 404 004
328	8 619 421 200
329	8 619 421 201
330	8 619 421 202
331	8 619 411 900
332	8 619 411 901
333	8 619 404 008
334	8 619 404 010
335	8 663 110 026

Explosionszeichnung (1) Transporteinheit
Exploded View (1) Transport Section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Lfd. Nr. Item no.	Bestell-Nr. Part no.
1	8 619 411 322
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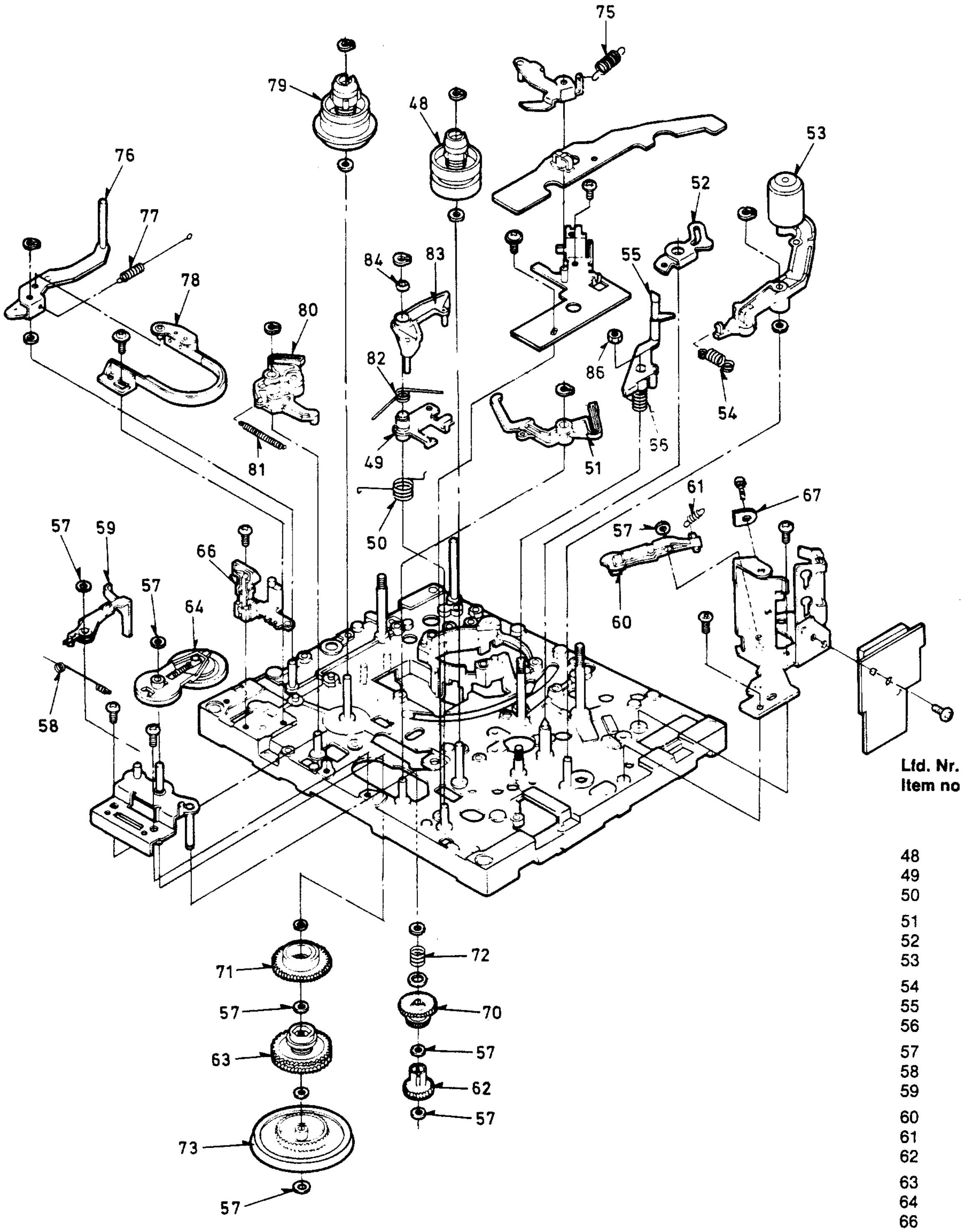
3	8 619 319 321
4	8 619 312 625
5	8 619 332 604
6	8 619 414 108
7	8 619 411 601
8	8 619 414 107
9	8 619 212 203
10	8 619 411 311
11	8 619 411 312
14	8 619 212 560
15	8 619 312 330
16	8 619 411 300
17	8 619 218 325
18	8 619 312 331
19	8 619 214 621
25	8 619 212 602
26	8 619 312 332
29	8 619 316 604
30	8 619 431 602
32	8 619 312 508
34	8 619 312 626
35	8 619 311 506
36	8 619 312 333
37	8 619 312 627
39	8 619 319 616
41	8 619 414 500
43	8 905 406 167
44	8 619 316 199

Explosionszeichnung (2) Laufwerkteile
Exploded View (2) Moving Mechanism Section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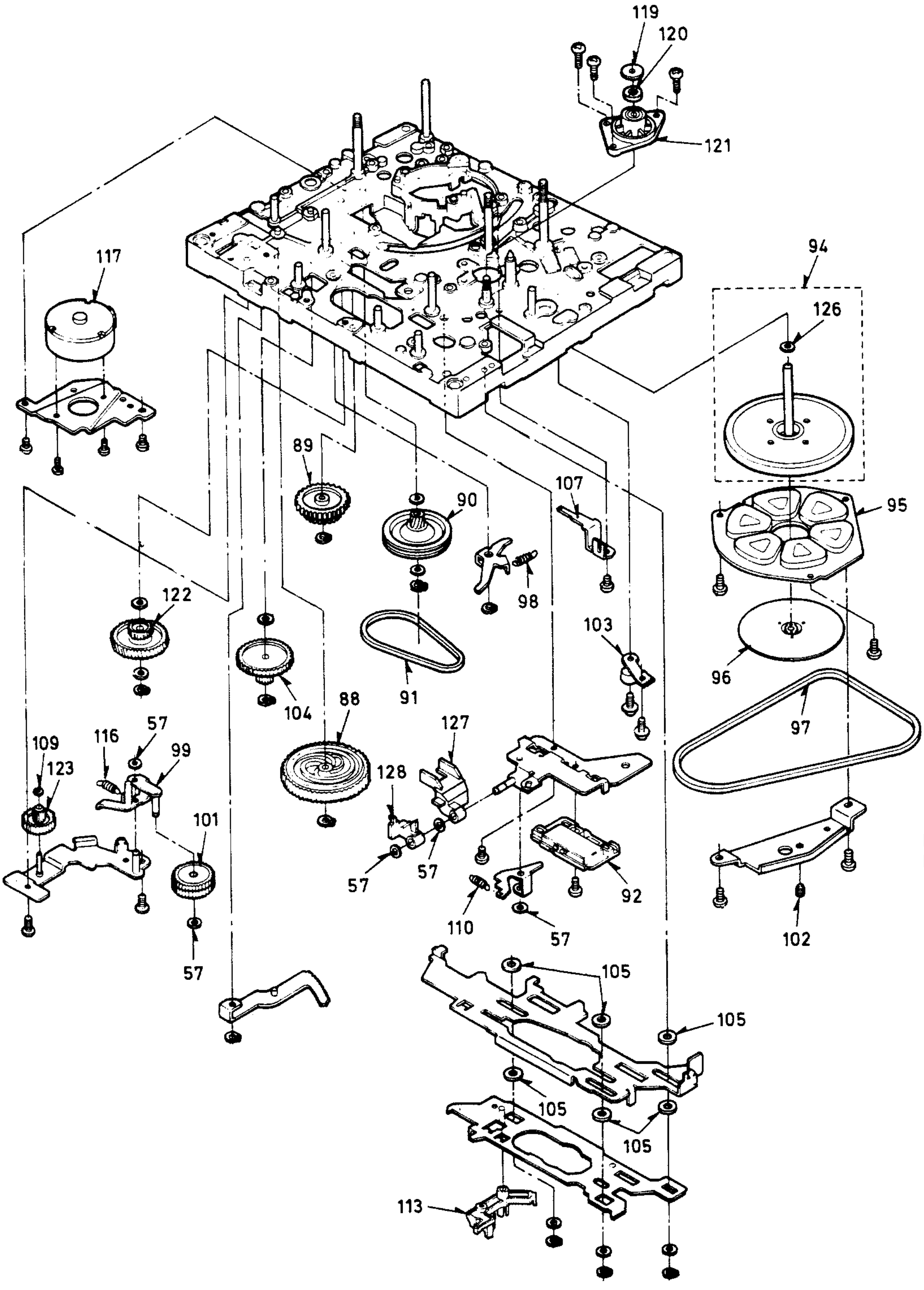
Lfd. Nr. Item no.	Bestell-Nr. Part no.
48	8 619 411 313
49	8 619 319 110
50	8 619 319 602
51	8 619 319 111
52	8 619 411 129
53	8 619 411 130
54	8 619 218 613
55	8 619 411 131
56	8 619 411 602
57	8 619 312 406
58	8 619 312 632
59	8 619 411 132
60	8 619 319 115
61	8 619 319 604
62	8 619 319 307
63	8 619 319 308
64	8 619 312 337
66	8 619 329 202
67	8 619 421 503
70	8 619 319 309
71	8 619 319 310
72	8 619 319 605
73	8 619 319 311
75	8 619 319 601
76	8 619 312 205
77	8 619 411 603
78	8 619 312 206
79	8 619 312 358
80	8 619 319 118
81	8 619 319 606
82	8 619 319 607
83	8 619 319 119
84	8 619 319 401
86	8 619 311 506

Explosionszeichnung (3) Chassisteile
Exploded View (3) Chassis Parts Section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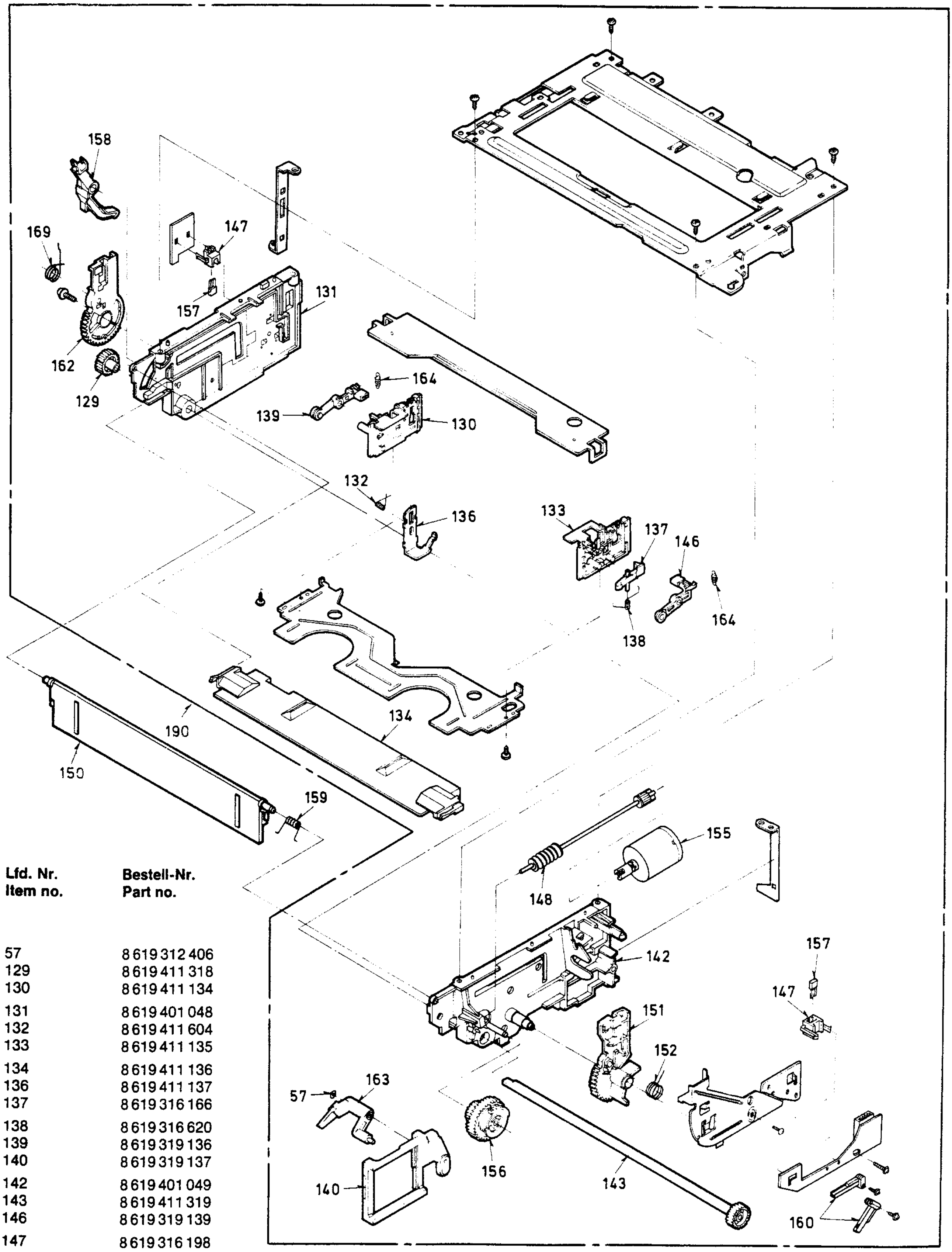
Lfd. Nr. Item no.	Bestell-Nr. Part no.
57	8 619 312 406
88	8 619 319 312
89	8 619 411 314
90	8 619 411 315
91	8 619 411 915
92	8 619 421 212
94	8 619 411 316
95	8 619 411 317
96	8 619 319 315
97	8 619 312 922
98	8 619 319 608
99	8 619 319 121
101	8 619 319 316
102	8 619 319 500
103	8 619 431 600
104	8 619 312 347
105	8 619 212 403
107	8 619 312 203
109	8 619 411 402
110	8 619 319 611
113	8 619 411 133
116	8 619 319 610
117	8 619 421 403
119	8 619 212 217
120	8 619 212 216
121	8 619 319 126
122	8 619 312 343
123	8 619 316 312
126	8 619 214 404
127	8 619 319 130
128	8 619 319 131

Explosionszeichnung (4) Cassettenfachteile
Exploded View (4) Cassette Loading Mechanism Section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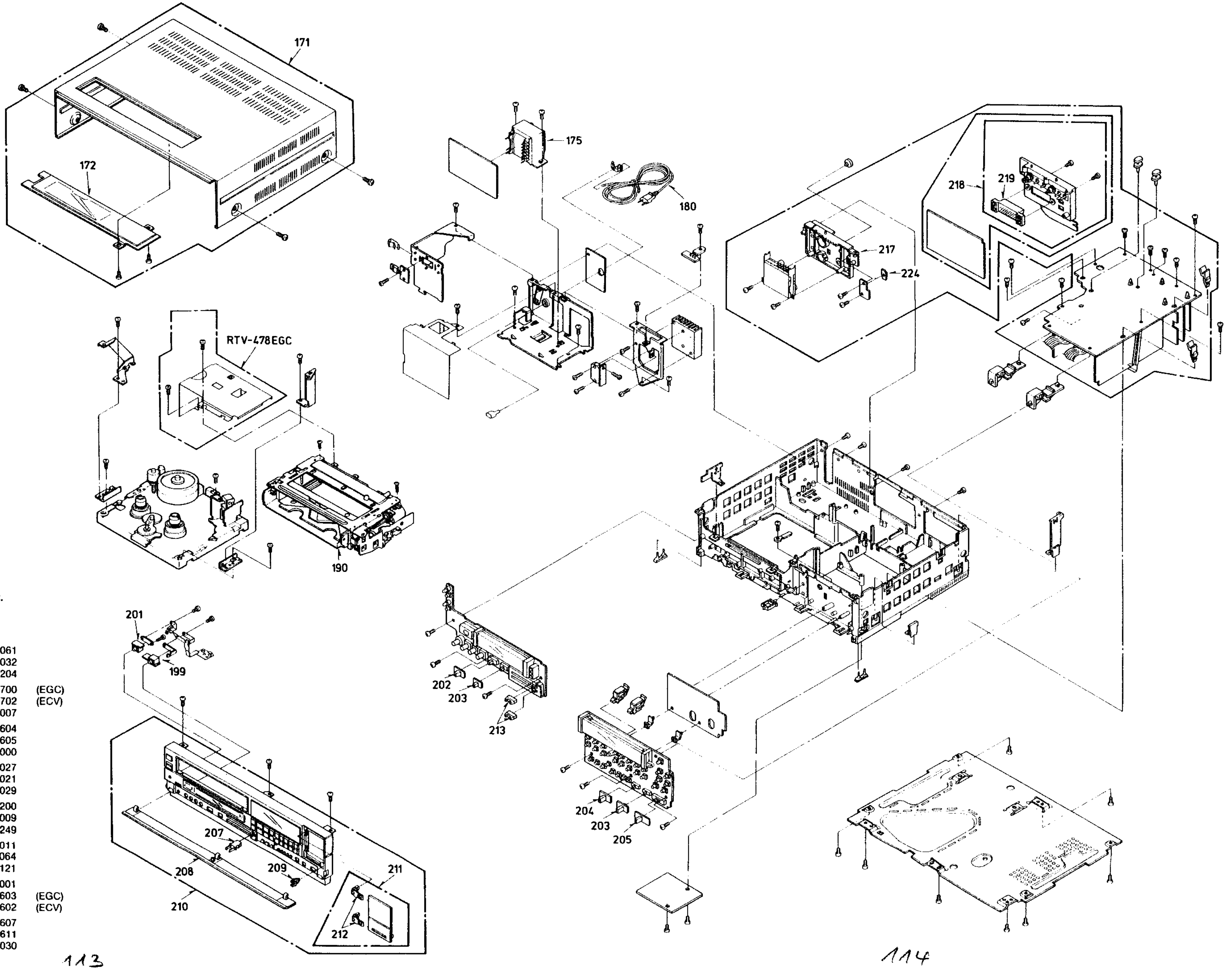
Lfd. Nr. Item no.	Bestell-Nr. Part no.
57	8 619 312 406
129	8 619 411 318
130	8 619 411 134
131	8 619 401 048
132	8 619 411 604
133	8 619 411 135
134	8 619 411 136
136	8 619 411 137
137	8 619 316 166
138	8 619 316 620
139	8 619 319 136
140	8 619 319 137
142	8 619 401 049
143	8 619 411 319
146	8 619 319 139
147	8 619 316 198
148	8 619 411 320
150	8 619 401 050
151	8 619 411 138
152	8 619 319 612
155	8 619 421 404
156	8 619 411 321
157	8 905 406 077
158	8 619 319 150
159	8 619 316 623
160	8 619 421 213
162	8 619 319 146
163	8 619 319 144
164	8 619 316 622
169	8 619 319 613
190	8 619 404 007

Explosionszeichnung (5) Gehäuseteile
Exploded View (5) Casing Parts Section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RTV-478EGC
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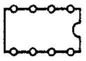
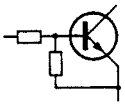
Lfd. Nr. Item no.	Bestell-Nr. Part no.	
171	8 619 401 061	
172	8 619 306 032	
175	8 619 434 204	
180	8 619 494 700	(EGC)
180	8 619 198 702	(ECV)
190	8 619 404 007	
199	8 619 424 604	
201	8 619 329 605	
202	8 619 414 000	
203	8 619 411 027	
204	8 619 411 021	
205	8 619 411 029	
207	8 619 481 200	
208	8 619 404 009	
209	8 619 312 249	
210	8 619 404 011	
211	8 619 401 064	
212	8 619 414 121	
213	8 619 414 001	
217	8 619 424 603	(EGC)
217	8 619 424 602	(ECV)
218	8 619 421 607	
219	8 619 424 611	
224	8 619 411 030	

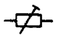
Lfd. Nr. Item no.	Bestell-Bezeichnung	Designation	Bestell-Nr. Part no.
	Wichtige mechanische Bauteile	**Important mechanical parts**	
400	Tuner	Tuner	8 619 431 400
401	HF-Konverter und Antennenanschluß (EGC)	RF converter and antenna Booster unit (EGC)	8 619 431 401
402	HF-Konverter und Antennenanschluß (ECV)	RF converter and antenna Booster unit (ECV)	8 619 431 402
403	Kopftrommel	DD cylinder unit	8 619 411 322
404	Kopfscheibe	Upper cylinder unit	8 619 411 323
405	Capstan Rotor	Capstan rotor unit	8 619 411 316
406	Capstan Stator	Capstan stator unit	8 619 411 317
407	Einfädelmotor	Loading motor	8 619 421 403
408	Einzugsmotor	Front loading motor	8 619 421 404
409	Funktions-Wahlschalter	Mode select switch	8 619 421 212
410	Löschkopf	FE head	8 619 332 604
411	A/C-Kopf	A/C head	8 619 431 602
412	FG-Kopf (Capstan)	FG head unit (Capstan)	8 619 431 600
413	Netztrafo	Power transformer	8 619 434 204
414	NF-Kabel	Audio cable	8 619 396 700
415	Antennenkabel	DIN RF cable	8 619 399 701
416	Kopfhöreradapter	M3-M6 adapter	8 619 399 702
417	IR-Fernbedienung	IR remote controller	8 619 491 803
418	Folienkabel 24 p. (P 6002–P 1517)	Flexible cable 24 p. (P 6002–P 1517)	8 619 494 701
419	Folienkabel 7 p. (P 6001–P 1510)	Flexible cable 7 p. (P 6001–P 1510)	8 619 494 702
420	Folienkabel 10 p. (P 7508–P 7510 + P 7509–P 7511)	Flexible cable 10 p. (P 7508–P 7510 + P 7509–P 7511)	8 619 494 703

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Hauptplatine Main Circuit Board	
		
IC 2001	AN 3821 K	8 945 900 481
IC 4001	M 5201 L	8 945 900 925
IC 4002	AN 6262 N	8 945 901 386
IC 6001	MN 15342 VEB	8 945 901 355
IC 6002	AN 6914	8 905 956 758
IC 6003	BA 6248	8 945 901 261
IC 6004	MN 1280 R	8 945 901 010
IC 7551	AN 5033	8 905 957 220
IC 7651	AN 5421	8 905 956 982
Q 3006	2 SB 641	8 905 705 540
Q 3008	2 SB 641	8 905 705 540
Q 4002	2 SD 1330	8 905 705 507
Q 4003	2 SD 636	8 905 705 604
Q 4004	2 SD 636	8 905 705 604
Q 4005	2 SD 1330	8 905 705 507
Q 6002	2 SD 636	8 905 705 604
Q 6004	2 SD 638	8 905 705 606
Q 6005	2 SB 561	8 905 705 384
Q 6006	2 SB 561	8 905 705 384
Q 6007	2 SD 1330	8 905 705 507
Q 6008	2 SB 641	8 905 705 540
Q 7551	2 SB 644	8 905 705 543
Q 7576	2 SB 644	8 905 705 543
Q 7651	2 SD 636	8 905 705 604
Q 7652	2 SD 637	8 905 705 605
Q 8001	2 SD 636	8 905 705 604

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
		
QR 701	UN 1213 (DTC 144)	8 945 705 386
QR 2001	UN 1213 (DTC 144)	8 945 705 386
QR 2002	UN 1113 (DTA 144)	8 945 705 340
QR 2004	UN 1213 (DTC 144)	8 945 705 386
QR 2005	UN 1113 (DTA 144)	8 945 705 340
QR 2006	UN 1213 (DTC 144)	8 945 705 386
QR 2007	UN 1213 (DTC 144)	8 945 705 386
QR 3001	UN 1212 (DTC 124)	8 945 705 283
QR 3002	UN 1211 (DTC 114)	8 945 705 344
QR 3003	UN 1212 (DTC 124)	8 945 705 283
QR 3005	UN 1213 (DTC 144)	8 945 705 386
QR 3006	UN 1111 (DTA 114)	8 945 705 402
QR 4001	UN 1212 (DTC 124)	8 945 705 283
QR 4002	UN 1111 (DTA 114)	8 945 705 402
QR 4003	UN 1212 (DTC 124)	8 945 705 283
QR 4004	UN 1213 (DTC 144)	8 945 705 386
QR 4005	UN 1112 (DTA 124)	8 945 705 343
QR 6001	UN 1211 (DTC 114)	8 945 705 344
QR 6002	UN 1212 (DTC 124)	8 945 705 283
QR 6003	UN 1112 (DTA 124)	8 945 705 343
QR 6004	UN 1113 (DTA 144)	8 945 705 340
QR 6005	UN 1211 (DTC 114)	8 945 705 344
QR 7551	UN 1211 (DTC 114)	8 945 705 344

Position Position	Bezeichnung Designation		Bestell-Nr. Part no.
D 2002	MA 165		8 905 421 098
D 2003	MA 165		8 905 421 098
D 3004	MA 165		8 905 421 098
D 4001	MA 154 WK		8 945 405 253
D 4002	MA 154 WK		8 945 405 253
D 4003	MA 165		8 905 421 098
D 4004	MA 154 WK		8 945 405 253
D 4005	MA 165		8 905 421 098
D 4006	MA 165		8 905 421 098
D 4007	MA 165		8 905 421 098
D 4008	MA 165		8 905 421 098
D 4009	MA 165		8 905 421 098
D 6001	MA 165		8 905 421 098
D 6005	MA 165		8 905 421 098
D 6007	ERA 15-01		8 945 405 527
D 6008	MA 165		8 905 421 098
D 6009	MA 165		8 905 421 098
D 6010	MA 165		8 905 421 098
D 6011	MA 165		8 905 421 098
D 6015	MA 165		8 905 421 098
D 7551	MA 165		8 905 421 098
D 7554	LN 28 WPVT		8 905 406 150
D 7555	MA 27 WB		8 905 421 421
D 7556	MA 165		8 905 421 098
D 7557	MA 165		8 905 421 098
D 7601	MA 165		8 905 421 098

R 2012	6,8 Ω	1/2 W	8 941 099 011



VR 2001	50 kΩ	8 941 599 071
VR 2002	100 kΩ	8 941 599 149
VR 2011	100 kΩ	8 941 599 149
VR 3051	200 Ω	8 941 599 135
VR 4001	1 kΩ	8 901 499 096
VR 4002	200 kΩ	8 901 499 107
VR 4503	2 kΩ	8 901 499 102
VR 4505	50 kΩ	8 901 499 105
VR 4510	100 kΩ	8 901 499 106
VR 7502	10 kΩ	8 941 599 137
VR 7660	2 kΩ	8 941 599 058

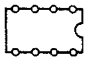
C 6018	1 F	5,5 V	8 942 999 005

L 3006	100 μH	8 619 332 067
L 701	68 μH	8 619 336 001
L 702	220 μH	8 619 336 026
L 703	220 μH	8 619 336 026
L 7551	1 000 μH	8 619 332 077

X 6001	VSX 0082	8 906 193 043

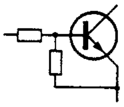
F 2001	VSF 0043 Thermosicherung/Thermal Fuse	8 619 481 002

Servo-Zusatzplatine
Servo Pack Circuit Board



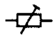
Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
IC 201	AN 3795 N	8 945 901 262
IC 203	AN 6387	8 905 956 971
IC 205	BA 8420	8 945 901 263
IC 206	AN 3792	8 945 901 006
IC 207	MN 6178 VAL	8 945 901 282

Q 201	2 SB 641	8 905 705 540
Q 203	2 SD 636	8 905 705 604
Q 204	2 SD 636	8 905 705 604
Q 205	2 SD 636	8 905 705 604

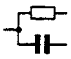


QR 202	UN 1113 (DTA 144)	8 945 705 340
QR 205	UN 1112 (DTA 124)	8 945 705 343
QR 208	UN 1113 (DTA 144)	8 945 705 340

D 204	MA 165	8 905 421 098
D 205	MA 165	8 905 421 098
D 208 – 214	MA 165	8 905 421 098

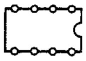


VR 2003	200 kΩ	8 941 599 268



CR 201	22 nF / 2,2 kΩ	8 940 890 136
CR 202	4 700 pF / 100 kΩ	8 940 890 135

Luminanz- und Farbplatine
Luminance and Chrominance Pack C. B.



IC 301	VEFY 015	8 945 901 292
IC 302	BA 7004	8 905 956 752
IC 801	VEFC 013	8 945 901 266

Q 301	2 SC 2206	8 905 705 485
Q 302	2 SC 2206	8 905 705 485
Q 303	2 SB 641	8 905 705 540
Q 801	2 SC 2206	8 905 705 485
Q 802	2 SD 636	8 905 705 604
Q 803	2 SD 636	8 905 705 604
Q 804	2 SC 2206	8 905 705 485
Q 805	2 SD 636	8 905 705 604
Q 806	2 SC 2206	8 905 705 485

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
QR 301	UN 1213 (DTC 144)	8 945 705 386
QR 302	UN 1212 (DTC 124)	8 945 705 283
D 301 - 306	MA 165	8 905 421 098
D 801	MA 165	8 905 421 098
D 802	MA 165	8 905 421 098
VR 801	500 Ω	8 941 599 310
CR 801	82 pF / 3,3 kΩ	8 940 890 153
L 301	15 μH	8 619 332 073
L 302	15 μH	8 619 332 073
L 303	100 μH	8 619 332 067
L 304	6,8 μH	8 619 332 083
L 306	82 μH	8 619 332 076
L 307	100 μH	8 619 332 067
L 308	100 μH	8 619 332 067
L 309	100 μH	8 619 332 067
L 310	100 μH	8 619 332 067
L 801	15 μH	8 619 332 073
L 802	47 μH	8 619 332 070
L 803	27 μH	8 619 332 069
L 804	150 μH	8 619 332 074
L 805	100 μH	8 619 332 067
L 806	47 μH	8 619 332 070
L 807	680 μH	8 619 332 072
L 808	680 μH	8 619 332 072
L 809	330 μH	8 619 332 071
L 810	100 μH	8 619 332 067

Verzögerungsleitungen / Delay Lines

Position	Bezeichnung	Bestell-Nr.
DL 301	EFDVN 645 A 43 D	8 619 386 300
DL 801	VLD 0080 (EFDHR124A13A)	8 619 484 300
FL 301	ELB 4 M 022	8 619 431 021
FL 302	VLF 0333	8 619 339 003
FL 303	ELB 4 H 020 (VLF 0413)	8 619 431 022
FL 801	VLF 0299	8 619 332 075
X 301	VSX 0099 (EFOA500KO4D2)	8 906 193 051
X 801	VSX 0162 (VSX0129)	8 946 193 116
Z 801	VCR 0118 (VCR0135)	8 940 890 060
Z 802	VCR 0119 (VCR0137)	8 940 890 061
Z 803	VCR 0120 (VCR0136)	8 940 890 062

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.

SECAM-Zusatzplatine
SECAM Pack Circuit Board

Position	Bezeichnung	Bestell-Nr.
IC 851	BA 7025 L (BA 70251)	8 945 900 368
Q 851	2 SC 2206	8 905 705 485
QR 851	UN 1212 (DTC 124)	8 945 705 283
QR 852	UN 1212 (DTC 124)	8 945 705 283
L 851	100 μH	8 619 332 067
T 851	ELM 7 Q 207 A	8 619 331 016
FL 851	VLF 0143	8 619 234 014

Signalwahl-Zusatzplatine
Input Select Pack C. B

Position	Bezeichnung	Bestell-Nr.
IC 3501	TA 7348 P	8 945 901 295
IC 4301	μPD 4052 BC	8 945 900 836
IC 4302	AN 6558	8 945 900 422
Q 3501	2 SB 641	8 905 705 540
QR 3501	UN 1213 (DTC 144)	8 945 705 386
QR 3502	UN 1213 (DTC 144)	8 945 705 386
QR 3503	UN 1213 (DTC 144)	8 945 705 386
D 3501	MA 165	8 905 421 098
D 3502	MA 165	8 905 421 098
D 3503	MA 165	8 905 421 098
D 3504	MA 165	8 905 421 098
D 3505	MA 165	8 905 421 098
D 4301	RD 6,2 JB	8 905 421 110
D 4302	MA 165	8 905 421 098
D 4303	MA 165	8 905 421 098
D 4304	MA 165	8 905 421 098
D 4305	MA 165	8 905 421 098

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
L 4301	1 000 µH	8 619 332 077
L 4302	1 000 µH	8 619 332 077
L 4303	1 000 µH	8 619 332 077
L 4304	1 000 µH	8 619 332 077
SW 3501	VSS 0152 (COLOUR / AUTO / TEST)	8 619 421 214

HQ-Zusatzplatine
HQ Pack Circuit Board

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 3602	2 SB 641	8 905 705 540
Q 3603	2 SB 641	8 905 705 540
Q 36[illegible]	2 SD 636	8 905 705 604
Q 3[illegible]	2 SB 641	8 905 705 540
Q 8501	2 SD 636	8 905 705 604
Q 8502	2 SC 2206	8 905 705 485
Q 8503	2 SC 2206	8 905 705 485
Q 8504	2 SC 2206	8 905 705 485
Q 8505	2 SC 2206	8 905 705 485
Q 8506	2 SC 2206	8 905 705 485
Q 8507	2 SC 2206	8 905 705 485
Q 8508	2 SD 636	8 905 705 604
Q 8511	2 SC 2206	8 905 705 485
QR 3601	UN 1211 (DTC 114)	8 945 705 344
QR 8501	UN 1212 (DTC 124)	8 945 705 283
D 3601	1 SS 99	8 905 406 067
D 3602	1 SS 99	8 905 406 067
D 8501	1 SS 99	8 905 406 067
D 8502	1 SS 99	8 905 406 067
VR 3011	200 Ω	8 941 599 314
VR 8007	500 Ω	8 901 599 142
L 3601	100 µH	8 619 332 067
L 3602	39 µH	8 619 332 079
L 8501		8 619 434 000
L 8502	15 µH	8 619 332 073
L 8503	100 µH	8 619 332 067

Verzögerungsleitung / Delay Line

Position	Bezeichnung	Bestell-Nr.
DL 8501	VLD 0089	8 619 484 301

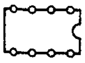
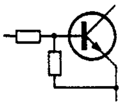
Audio-Zusatzplatine
Audio Pack Circuit Board

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
IC 401	µPC 1514 CA	8 945 900 365
IC 402	TA 7361 AP (µPC 1519 HA)	8 945 900 927
Q 401	2 SD 602 A	8 945 705 281
Q 404	2 SD 1328	8 945 705 275
CR 401	10 nF / 15 kΩ	8 940 890 154
CR 402	1 nF / 47 kΩ	8 940 890 140
L 401	470 µH	8 619 332 068
L 402	8 200 µH	8 619 339 001
FL 401	VLF 0332	8 619 339 004
T 401	EIQ 7 QF 013 Q	8 619 434 201

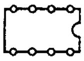
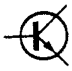
Tonausgangs-Umschaltplatine
Audio Output Select Pack C. B.

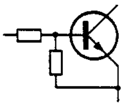
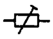
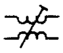
Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
IC 4401	BA 7056 LS	8 945 901 287
IC 4402	AN 6552 (µPC 4558)	8 905 956 274
IC 4403	AN 6552 (µPC 4558)	8 905 956 274
Q 4401	2 SD 1330 (2 SD 655, 2 SD 1657)	8 905 705 507
Q 4402	2 SD 1330 (2 SD 655, 2 SD 1657)	8 905 705 507
QR 4401	UN 1212 (DTC 124)	8 945 705 283
QR 4402	UN 1112 (DTA 124)	8 945 705 343
D 4401	MA 165	8 905 421 098
R 4409	33 Ω 1/4 W	8 941 099 022

FM-Audio-Zusatzplatine
FM Audio Pack C. B.

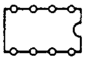
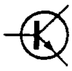
Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
		
IC 4501	VEFA 008	8 945 901 293
IC 4502	VEFA 009	8 945 901 294
IC 4503	AN 3920 K	8 945 901 289
IC 4504	AN 78L05	8 945 901 025
IC 4505	TA 7302 P	8 945 900 424
IC 4506	TA 7302 P	8 945 900 424
Q 4501 -		
Q 4505	2 SD 1330 (2 SD 1657)	8 905 705 507
		
QR 4501	2 SD 1676	8 945 705 406
D 4501	MA 165	8 905 421 098
D 4502	MA 165	8 905 421 098
D 4503	MA 165	8 905 421 098
L 4501	100 µH	8 619 332 067
L 4502	100 µH	8 619 332 067
FL 4501	VLF 0440	8 619 434 003
FL 4502	VLF 0440	8 619 434 003
FL 4503	VLF 0442	8 619 434 005
FL 4504	VLF 0441	8 619 434 004
FL 4505	VLF 0443 (VLF 0444)	8 619 434 006
FL 4506	VLF 0445 (VLF 0446)	8 619 434 007

TV-Demodulator-Platine
TV Demodulator C. B

		
IC 701	M 51366 SP	8 945 901 286
IC 751	AN 5215	8 905 956 763
		
Q 703	2 SD 636	8 905 705 604
Q 710	2 SC 1047	8 905 705 583
Q 711	2 SC 1687	8 905 705 594
Q 712	2 SD 638	8 905 705 606
Q 713	2 SD 1330	8 905 705 507
Q 714	2 SD 636 (2 SD 637, 2 SD 685)	8 905 705 604
Q 715	2 SD 636 (2 SD 637, 2 SD 685)	8 905 705 604

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
		
QR 710	UN 1214	8 945 705 432
QR 711	UN 1211 (DTC 114)	8 945 705 344
QR 712	UN 1211 (DTC 114)	8 945 705 344
QR 713	UN 1211 (DTC 114)	8 945 705 344
QR 714	UN 1214	8 945 705 432
D 712	MA 165	8 905 421 098
		
VR 701	2 kΩ	8 941 599 311
VR 702	2 kΩ	8 941 599 311
VR 741	10 kΩ	8 901 499 109
VR 751	10 kΩ	8 901 499 109
L 711		8 619 434 001
L 712		8 619 232 021
L 713		8 619 434 002
L 714		8 619 434 001
L 715	68 µH	8 619 336 001
L 716	3,3 µH	8 619 332 082
L 717	68 µH	8 619 336 001
L 718	68 µH	8 619 336 001
L 719	12 µH	8 619 336 003
		
T 703	EIV7E016F	8 619 238 234
T 704	EIV7E016D	8 619 434 202
T 710	EULBEF022	8 619 434 203
T 711	EIS7E006B	8 619 238 232
T 752	EIS7E006B	8 619 238 232
X 710	VLF0468	8 619 434 008
X 711	EFCS5R5MW 3	8 906 193 056
X 712	EFCS5R5MS4B	8 946 193 083
X 713	EFCS5R5MS4B	8 946 193 083
X 714	ELB5A016	8 946 193 026
X 715	ELB5A043	8 946 193 117
X 751	EFCS5R74MS4B	8 619 332 008
X 752	EFCS5R74MS4B	8 619 332 008

Dekoderplatine
Decoder Circuit Board

		
IC 7301	TDA 3803 A	8 945 901 097
		
Q 7301	2 SD 636 (2 SD 637, 2 SC 1685)	8 905 705 604
Q 7302	2 SD 636 (2 SD 637, 2 SC 1685)	8 905 705 604
Q 7303	2 SD 636 (2 SD 637, 2 SC 1685)	8 905 705 604

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
QR 7311	UN 1214	8 945 705 432
QR 7312	UN 1211 (DTC 114)	8 945 705 344
QR 7313	UN 1211 (DTC 114)	8 945 705 344
QR 7314	UN 1211 (DTC 114)	8 945 705 344
D 7301	MA 165 (1 SS 133)	8 905 421 098
D 7302	MA 165 (1 SS 133)	8 905 421 098
D 7303	MA 165 (1 SS 133)	8 905 421 098
D 7305	MA 165 (1 SS 133)	8 905 421 098
D 7306	MA 165 (1 SS 133)	8 905 421 098
D 7307	MA 165 (1 SS 133)	8 905 421 098
D 7308	MA 165 (1 SS 133)	8 905 421 098
VR 7301	20 kΩ	8 941 599 312
VR 7326	500 Ω	8 901 499 108
VR 7328	500 Ω	8 901 499 108
VR 7340	10 kΩ	8 901 499 109
VR 7344	10 kΩ	8 901 499 109
L 7301	VLQEL05F102K	8 619 332 077
L 7304	VTQ0014	8 619 238 051
T 7301	EIR7QG0013	8 619 336 204

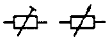
Video/Audio Kopfverstärkerplatine Video/Audio Head Amp. Pack C. B.

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
IC 501	AN 3224 K	8 945 901 290
IC 502	AN 3311 S	8 945 901 267
IC 551	μPC 1531 HA	8 945 900 834
Q 501	2 SD 601	8 905 705 629
Q 502	2 SC 2404	8 905 705 644
Q 551	2 SB 709	8 925 705 077
Q 552	2 SB 643	8 905 705 542
Q 553	2 SD 602	8 945 705 281
Q 554	2 SD 601	8 905 705 629
QR 501	UN 2211	8 945 705 474
QR 551	UN 2112	8 945 705 310
QR 552	2 SD 1777	8 945 705 407
QR 553	2 SD 1777	8 945 705 407
VR 501	1 kΩ	8 901 499 083
VR 502	5 kΩ	8 941 599 313
L 501	82 μH	8 619 434 011
L 502	150 μH	8 619 434 010
L 503	100 μH	8 619 434 009
L 504	18 μH	8 619 434 013
L 506	100 μH	8 619 434 009
L 508	18 μH	8 619 434 013
L 509	100 μH	8 619 434 012
L 510	18 μH	8 619 434 013
L 511	100 μH	8 619 434 009
L 551	2,2 μH	8 619 434 014
L 552	2,2 μH	8 619 434 014
L 553	100 μH	8 619 434 009
L 554	100 μH	8 619 434 009

Bedienteilplatine Operation Circuit Board

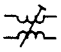
Position Position	Bezeichnung Designation		Bestell-Nr. Part no.
IC 6201	BA 6800 AS		8 945 901 288
IC 6202	μPC 1373 HA		8 945 901 012
Q 6201	2 SB 641		8 905 705 540
Q 6202	2 SD 636		8 905 705 604
QR 6201	UN 1112 (DTA 124)		8 945 705 343
QR 6202	UN 1112 (DTA 124)		8 945 705 343
QR 6203	UN 1112 (DTA 124)		8 945 705 343
QR 6204	UN 1112 (DTA 124)		8 945 705 343
QR 6205	UN 1112 (DTA 124)		8 945 705 343
QR 6206	UN 1111 (DTA 114)		8 945 705 402
QR 6207	UN 1212 (DTA 124)		8 945 705 283
QR 6208	2 SD 1676		8 945 705 406
QR 6209	2 SD 1676		8 945 705 406
D 6201	MA 165		8 905 421 098
D 6202	MA 165		8 905 421 098
D 6205	LN31GCPHLMU		8 905 405 428
D 6207	LN28RCPP		8 905 405 193
D 6208	LN28RCPP		8 905 405 193
D 6209	LN28RCPP		8 905 405 193
D 6210	MA 167		8 945 405 323
D 6211	LN81RCPHL		8 905 405 315
D 6213	MA 165		8 905 421 098
D 6214	MA 165		8 905 421 098
R 6224	56 Ω	1/4 W	8 941 099 023
RX 6201	100 kΩ		8 940 890 119
RX 6202	100 kΩ		8 940 890 119
RX 6203	100 kΩ		8 940 890 119

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.



VR 2007	100 kΩ (TRACKING)	8 941 599 239
VR 2008	100 kΩ (SLOW TRACKING)	8 941 599 239
VR 3004	20 kΩ (PICTURE)	8 941 599 274
VR 6201	10 kΩ	8 901 499 109
VR 6202	10 kΩ	8 901 499 109
VR 6203	2 x 1 kΩ (PHONES LEVEL)	8 941 599 309
VR 6204	2 x 5 kΩ (AUDIO REC LEVEL)	8 941 599 215

L 6201	120 μH	8 619 336 004
L 6202	120 μH	8 619 336 004



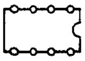
T 6201	EIR7QE007B	8 619 431 212

SW 6201	EVQQS307K (VTR)	8 619 322 210
SW 6202	EVQQS307K (EJECT)	8 619 322 210
SW 6203	EVQQS307K (AUDIO SELECT)	8 619 322 210
SW 6205	ESD14316 (AUDIO LEVEL)	8 619 424 200
SW 6206	ESD14314 (AUDIO REC SP/LP)	8 619 421 211

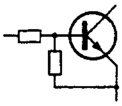
Anzeige / Display

DP 6201	VSL 0075	8 619 481 501

Timerplatine
Timer Circuit Board



IC 7501	MN 15881 VDL	8 945 901 283
IC 7504	MN 1280 P	8 945 901 269



QR 7501	UN 1211 (DTC 114)	8 945 705 344
QR 7502	UN 1211 (DTC 114)	8 945 705 344

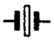
D 7501	ERA 15-01	8 945 405 527
D 7502	MA 4082	8 945 421 232
D 7503	LN28RCPP	8 905 405 193
D 7505	ERA 15-01	8 945 405 527
D 7506 - 7513	MA 165 (1 SS 133, 1 SS 119)	8 905 421 098

Anzeige / Display

DP 7501	VSL 0087	8 619 481 506

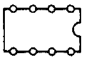
Position Position	Bezeichnung Designation	Bestell-Nr. Part no.

SW 7501 - 7519	EVQQ307K (div. Pos.)	8 619 322 210
SW 7521	ESD14314 (TIMER REC)	8 619 421 211
SW 7522 - 7534	EVQQ307K (div. Pos.)	8 619 322 210
SW 7535	ESD14314 (MPX FILTER)	8 619 421 211
SW 7536	VSS0149 (INPUT SELECT)	8 619 421 215

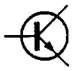


X 7501	VSX 0140	8 946 193 101
X 7502	VSX 0094	8 906 193 053

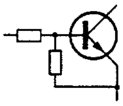
Timer-Zusatzplatine
Sub Timer Circuit Board



IC 7502	MN 1220	8 945 901 219
IC 7503	MN 1514 VDM	8 945 901 284
IC 7505	AN 6913	8 905 956 983
IC 7506	MN 4066 B (μPD 4066 BC)	8 945 901 388



Q 7501	2 SD 637	8 905 705 605
Q 7502	2 SD 637	8 905 705 605



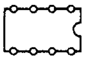
QR 7503	UN 1112 (DTA 124)	8 945 705 343
QR 7504	UN 1211 (DTC 114)	8 945 705 344
QR 7505	UN 1213 (DTC 144)	8 945 705 386
QR 7506	UN 1213 (DTC 144)	8 945 705 386

D 7514	MA 165	8 905 421 098
D 7515	MA 165	8 905 421 098
D 7517	MA 165	8 905 421 098

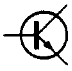
L 7501	1 μH	8 619 339 002

X 7503	VSX 0082	8 906 193 043

VPS-Platine
VPS Circuit Board



IC 7801	SAA 5235	8 945 900 858
IC 7802	SAF 1135 P	8 945 901 285



Q 7801	2 SD 636	8 905 705 604
Q 7802	2 SB 641	8 905 705 540
Q 7803	2 SB 641	8 905 705 540

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
L 7801	VLQ 0193	8 619 431 019
L 7802	100 μH	8 619 332 067
L 7803	100 μH	8 619 332 067
X 7801	VSX 0173	8 946 193 102

HF-Konverter und Ant.-Anschluß-Platine RF Converter and Ant. Terminal Board

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	ENC 87784 (ECV)	8 619 431 402
	ENC 87786 (EGC)	8 619 431 401
IC 1	LA 7051	8 945 901 272
Q 1	2 SC 3130	8 945 705 400
Q 2	2 SC 2570 A (2 SC 3355)	8 945 705 239
Q 3	2 SC 2570 A (2 SC 3355)	8 945 705 239
D 1	MA 1075	8 905 421 101
D 2	1 SS 86 (1 SS 174, 1 SS 87)	8 905 421 108
D 3	1 SS 86 (1 SS 174, 1 SS 87)	8 905 421 108
D 4	MA 161 (MA 166, 1 SS 135)	8 905 421 095
D 5	MA 161 (MA 166, 1 SS 135)	8 905 421 095

Transformator-Platine Power Transformer C. B.

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1101	2 SA 684	8 905 705 474
Q 4101	2 SD 639	8 905 705 008
D 1101 - 1112	10E1	8 905 406 090
D 1113	ERA 15-02	8 945 405 536
D 1114	ERA 15-02	8 945 405 536
D 1115	MA 4130 H	8 945 421 233
D 1116	MA 4300 L	8 945 421 198
D 1117	MA 4140 M	8 945 421 234
D 1118	MA 165	8 905 421 098
D 1119	MA 165	8 905 421 098
R 1107	4,7 Ω 2 W	8 901 027 010
CR 4101	15 kΩ / 0,01 μF	8 940 890 154
L 1101	VTQ 0046	8 619 431 000
L 4101	100 μH	8 619 332 067
T1101	VTP 0195	8 619 434 204
T 4101	EIQ7QF012Q	8 619 434 200
F 1101	0,4 AT	1 904 522 829
F 1102	2 AT	1 904 522 841
F 1103	1,25 AT	1 904 522 838
F 1104	1,6 AT	1 904 522 840

Leistungstr.-Platine Heater C. B.

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1501	2 SD 1275	8 905 705 028

Transistor-Platine Transistor Circuit Board

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1502	2 SD 1275	8 905 705 028

Cassetten-Einzugsplatine Front Loading C. B.

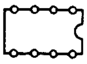
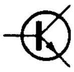
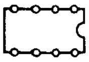
Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1503	PN 150 NV	8 905 406 077
	VMD0645 Halter/Holder	8 619 316 198

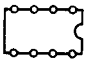
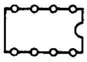
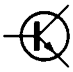
Transistor (2)-Platine Transistor (2) Circuit Board

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1504	2 SD 1275	8 905 705 028

Ersatzteilliste

Spare Parts List

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Stabilisierungsplatine **Regulator Circuit Board**	
		
IC 1101	STK5335	8 945 901 291
	IR-Empfängerplatine **IR Receiver C. B.**	
D 6204	PN 313 (PH 302)	8 905 406 153
	Abwickel-Tr.-Platine **Supply Photo Tr. C. B.**	
		
Q 1502	PN 150 NV	8 905 406 077
	VMD0645 Halter/Holder	8 619 316 198
	LED-Platine **LED Circuit Board**	
D 1501	GL 450 (LN 59)	8 905 406 167
	VMD0644 LED-Halter/LED Holder	8 619 316 199
	Wickelsensor-Platine **Reel Sensor C. B.**	
		
IC 1501	ON 2170	8 945 901 273
	Kopfhörer-Buchsenplatine **Head Phone Jack C. B.**	
	Kopfhörer-Buchse/H. P. Jack	8 619 329 605

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Mikrofon-Buchsenplatine **Mic Jack C. B.**	
	Mikrofon-Buchse/Mic Jack	8 619 424 604
	Mikrofonplatine **Mic Amp. Pack C. B.**	
		
IC 4201	BA 3308	8 945 901 387
	HQ-Schalterplatine **HQ Switch C. B.**	
SW 3601	(DETAIL)	8 619 424 214
	IR-Fernbedienung **IR Remote Controller**	
	IR-Fernbedienung/ IR Remote Controller	8 619 491 803
		
IC 1	MN 6013 C	8 945 901 222
		
Q 1	UN 1231	8 940 890 163
D 1	LN 66 S (SE 303 AY)	8 945 405 350
X 1	CSB 420 PB 1 (EFOA420KO5F1)	8 946 193 049

Hinweis:
Handelsübliche Kondensatoren und Widerstände sind in der Ersatzteilliste nicht aufgeführt. Wir bitten Sie, diese Teile im Fachhandel zu beziehen.

Note:
Capacitors and resistors usual in trade are not mentioned in the spare parts list. Kindly buy these parts from the specialized trade.